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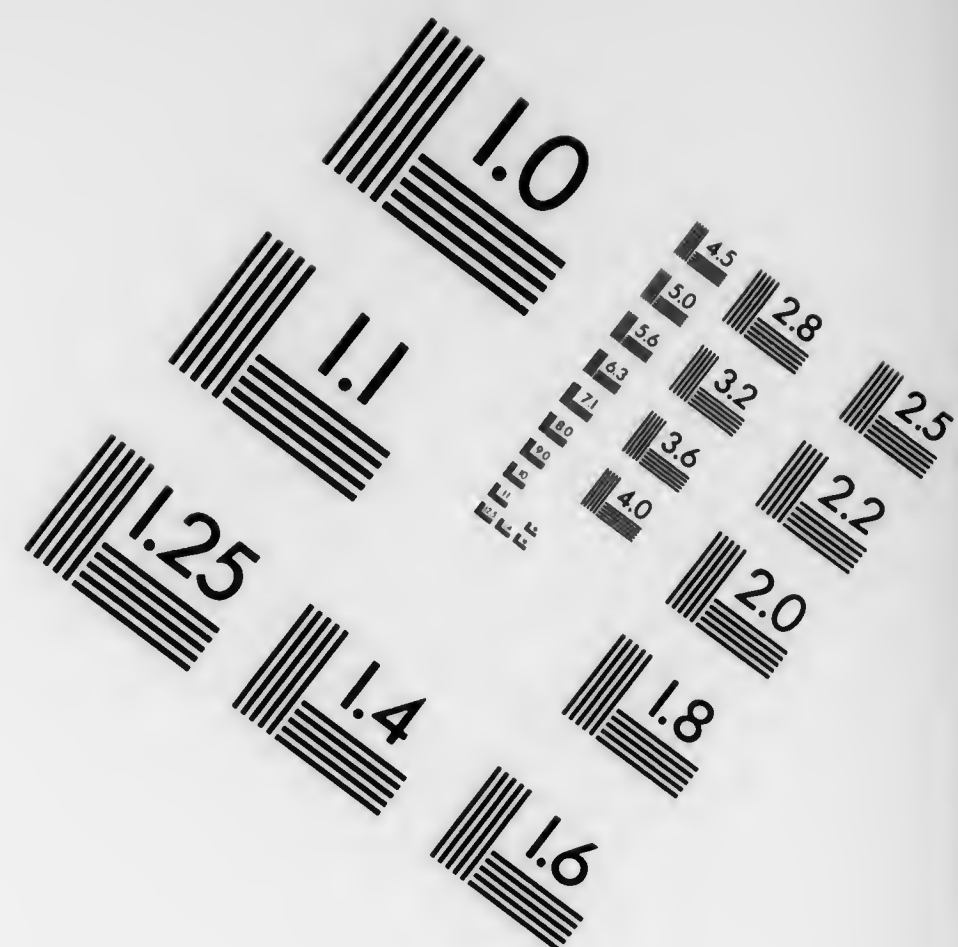
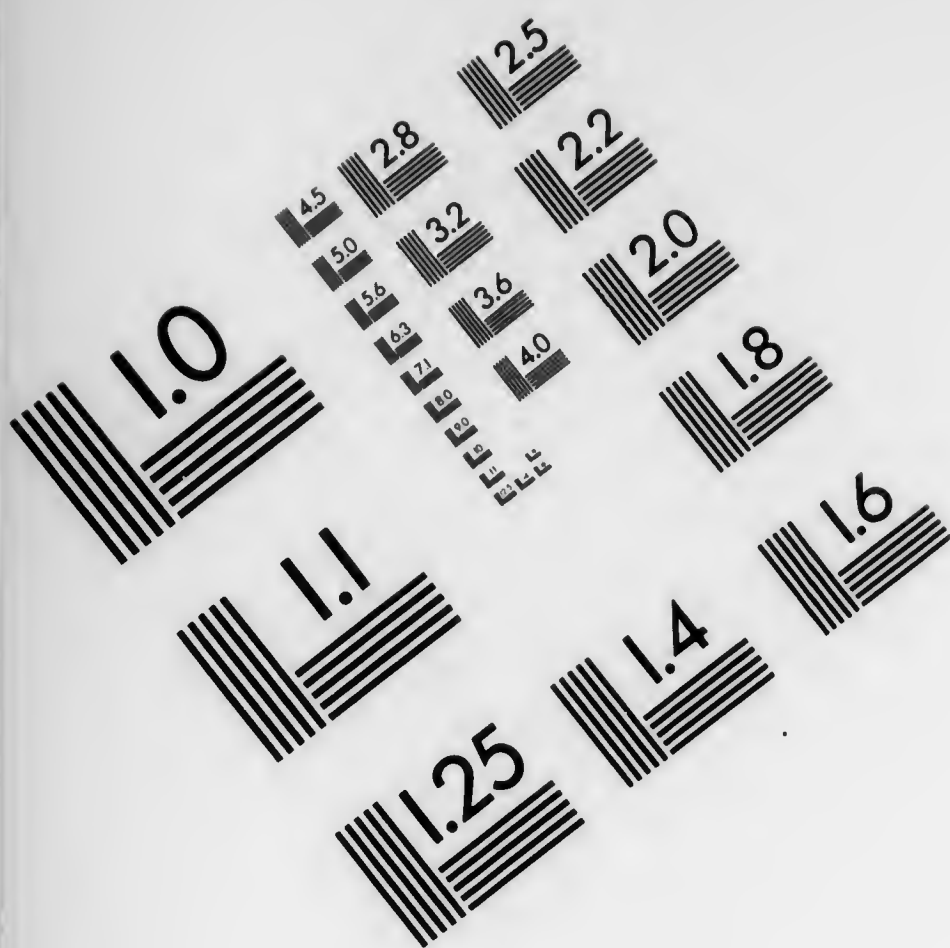
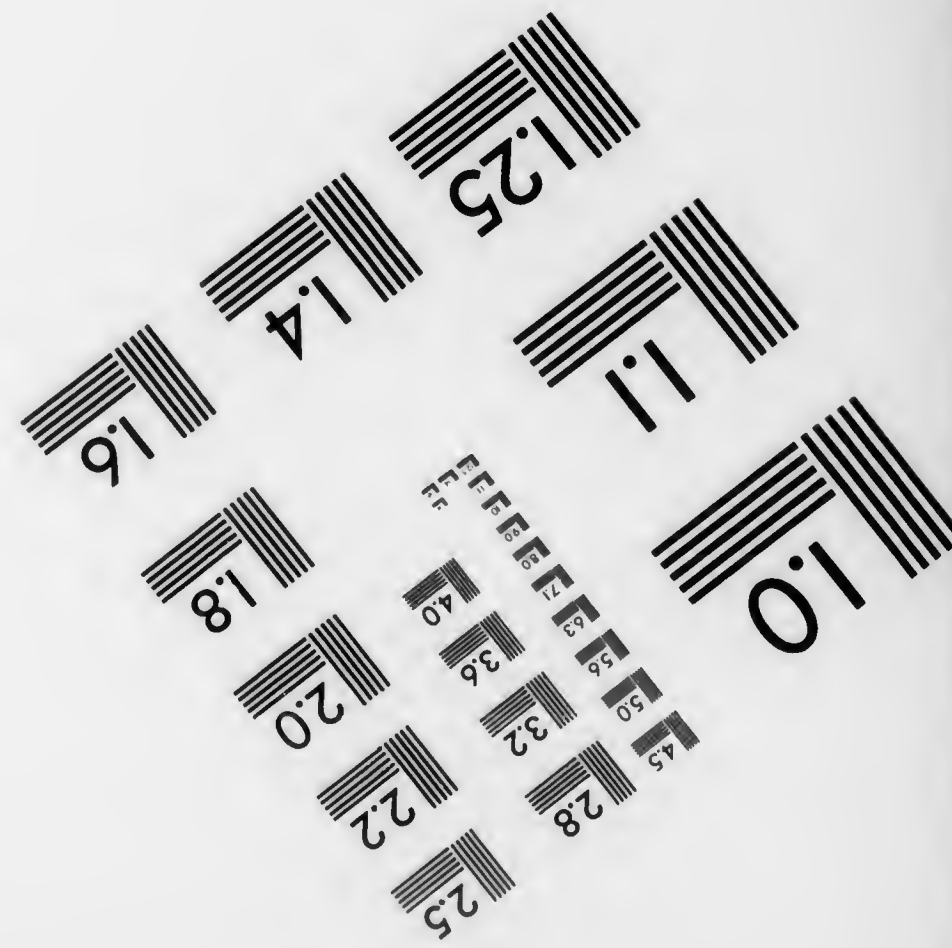
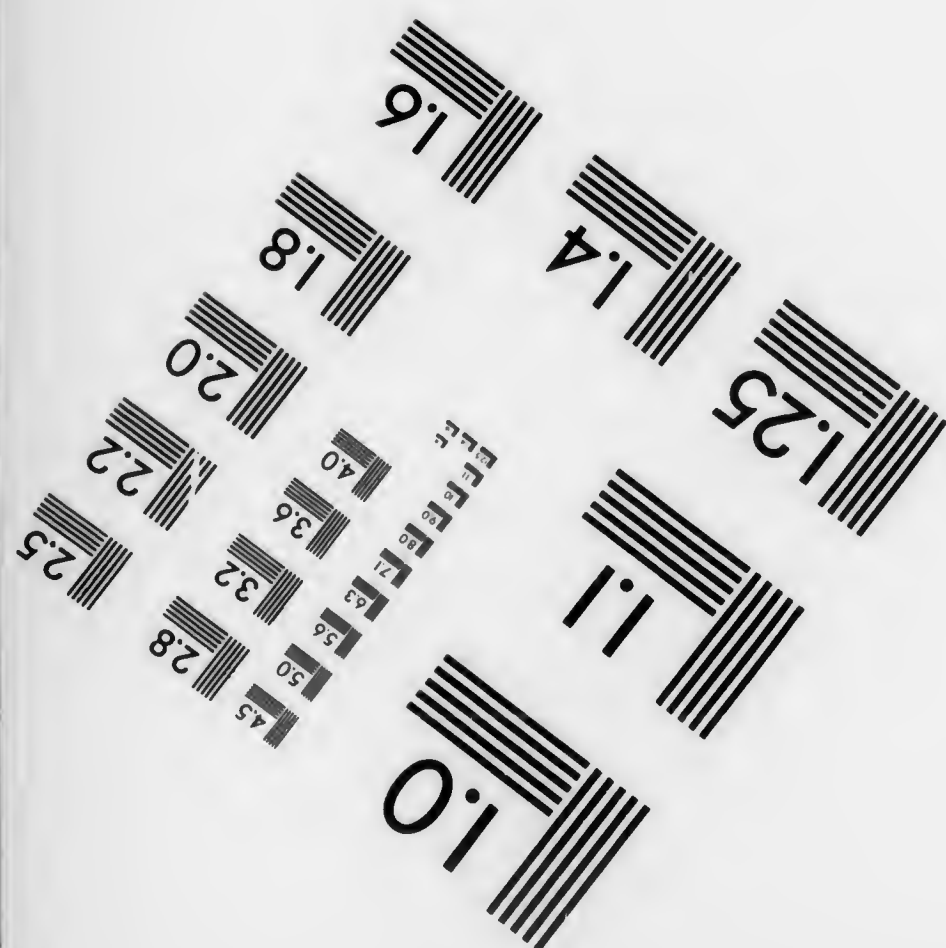
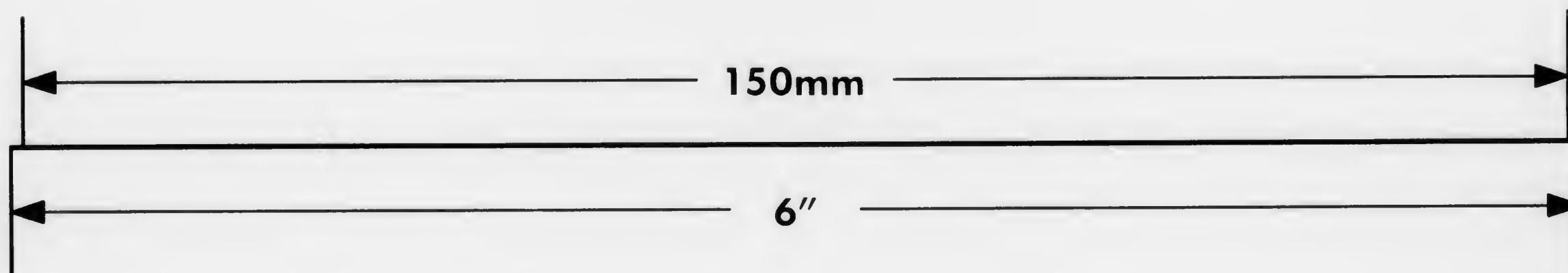
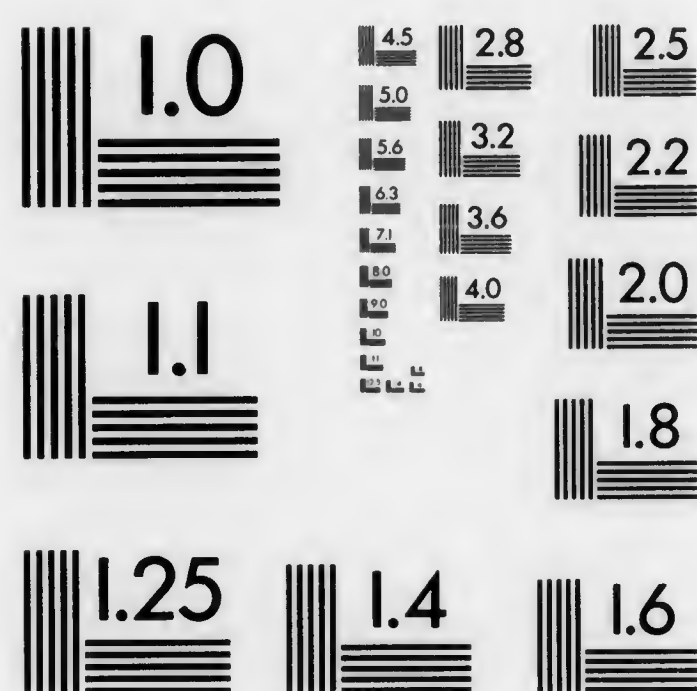


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THE GARDENER'S MONTHLY

AND

HORTICULTURIST.

DEVOTED TO

HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

EDITED BY

THOMAS MEEHAN,

STATE BOTANIST OF PENNSYLVANIA,

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VOLUME XXI, 1879.

PHILADELPHIA.

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1879.

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THE
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Vol. XXI.

JANUARY 1879.

Number 241.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

We have often stated that one of the grievous errors of American gardening is that they are too large. American fortunes are not so steady. We have a succession of years of prosperity, and among other luxuries, form a good garden; but it is hardly put in fair order before we find that its necessary expenses are too large for our income, and the establishment runs down. We see these places everywhere. Here are gardens which ought to have half a dozen men to keep them properly, cut down perhaps to one laborer, besides the gardener; and the gardeners engaged are of the cheapest kind, and for all grudgingly paid. It should never be forgotten that it costs something to keep up a garden as well as to maintain horses and carriages. We build stables, and buy fine animals, but we well know that this is but the beginning of an annual cost. A garden must be viewed in the same light. Many lose interest in their gardens through getting poor gardeners. There is nothing new, no taste, no enjoyment. Far better to get some one of superior education and pay him well, though we have but half the extent of ground, or a much less number of greenhouses. We should advise all our friends to cut down their large gardens, employ with the difference only first-rate men at a

fair price, and it will be wonderful how much the interest in the garden will grow.

Those who have small gardens may also profit by the hint. Have no more land occupied than can be kept in the highest order. Where no regular gardener is kept, and only the “jobber” a day or two a week is to be called in, use considerable judgement in the selection of the man. Near all large towns there are, at least, a half dozen to choose from. When the right one is found, be liberal with him. It is far better to encourage good knowledge and good taste, at the expense of smaller grounds, than to have large places badly kept, simply because a poor tool will work for wages which he could make as well by day's work as a laborer on a railroad. So much for concentration of energy and expense.

Turning now to more practical matters, we would say that before any walk is located, be sure it is absolutely required. A pretty outline should be subservient to this. Utility is the essence of beauty in a garden walk. With these general hints on first cost and maintenance, we can only give, this month, the more practical advice to get ready for regular work.

The manure heap is one of those items that can receive attention at this season to advantage. Without a good pile of rich compost, very little success can be hoped for in any kind of gardening affairs. Leaves and litter of every

description should be collected whenever possible, and stored in suitable places, where they will not be offensive by their littery appearance. For flowers, generally leaf mould from the woods is very acceptable—not the half-rotted leaves that are immediately on the surface, but such as have been powdered by age, and amongst which the roots of the trees have already penetrated, and rendered of a spongy consistence. We like all manures to be thoroughly decomposed before using, if the garden soil is already light and friable; and to this purpose the manure heap should be occasionally turned over and lightened, to assist fermentation. This, also, is aided by watering the heap with a solution of potash, and which also gives additional value to the manure.

It is a very good practice to cover lawns with manure at this season. Two good results flow from this course: the frost is prevented from penetrating so deeply, and the ground being warmed much sooner in Spring, is green and cheerful some time before unprotected lawns, and then the grass itself is strengthened, and its color brightened by the operation. But stable manure has the objection of introducing many coarse kinds of weeds, that would not otherwise exist on the lawn; and so where the grass grows poorly, and strength and luxuriansness are desired, guano and the phosphates are preferred. Many use bone dust, ashes, etc.; but the mowers are apt to feel somewhat indignant, in mowing time, through this material taking the edge off their scythes and mowing machines.

Manure for flower beds, borders, etc., may be hauled convenient to where it is likely to be wanted in Spring. Many spread it on at once—but if the soil is frozen very thick, it prevents the early thawing of the soil in the Spring, and so no time is gained.

Evergreens set out last fall in windy or exposed situations, will be benefited by a shelter of Cedar branches, Corn stalks, or mats set against them. Whether hardy or tender, all will be benefited thereby.

COMMUNICATIONS.

THE CLIMBING HYDRANGEA.

BY PROF. C. S. SARGENT, CAMBRIDGE, MASS.

Too great expectations as to the horticultural value of this much-heralded plant will, I fear,

only lead to greater disappointment. It is by no means new, as it was very well figured forty odd years ago by Siebold and Zuccarini in their Flora of Japan; and if it is new to gardens it is only because it has never seemed worth introducing into them before. The foliage is by no means striking. The individual flowers are small and arranged in loose long-branched cymes, but without any of the showy sterile flowers which make Hydrangeas desirable garden plants. In Schizophragma, a few of the outer pedicels are very much lengthened out, and in place of flowers, bear small white bracts, which however characteristic and curious, add no beauty to the inflorescence. Thanks to Colonel Clark, President of the Massachusetts Agricultural College. I received some years ago, a supply of seed of Schizophragma, of which I had a large number raised for distribution among European botanic gardens and other correspondents. No plant is more easily raised either from seed or from cuttings. Some of Colonel Clark's other Japanese introductions are of far greater value and interest, notably *Sciadopitys*, of which, thanks to him, there are now seedlings by the hundred-thousands in the country. To him too, we are indebted for the first introduction of the anomalous *Cercidophyllum Japonicum*, in which there is good promise of an ornamental deciduous tree of the very first importance.

THE CLIMBING HYDRANGEA—Schizophragma Hydrangeoides.

BY PETER HENDERSON, JERSEY CITY HEIGHTS, NEW JERSEY.

In the December number, Mr. Edwin Lonsdale, makes inquiry of me if I had found the above plant to be hardy throughout the whole of last Winter, as when I described it in my catalogue we had only then got to 25th of December. I am happy to inform him and your readers generally, that it proved entirely hardy, not a twig being injured. To be sure last Winter was an unusually mild one, the lowest point it touched with us being zero, and that only for a day or two, twice during the entire Winter, but the Hydrangeas were planted on a bleak north-western exposure on a stiff clayey soil—conditions such as to well try the hardness of any plant. From the result I have no hesitation in predicting that this new climbing Hydrangea, will be hardy in every situation where Hydrangea paniculata proves to be hardy, and like that grandest of all

our hardy shrubs, I think it very probable that when once established, the Schizophragma will prove to be one of the finest of all our hardy climbing plants. I notice Mr. S. B. Parsons says he finds it slow of propagation; we also found it so until we began to raise it from seed. From seed we procured plants having greatly increased vitality, so that we found no difficulty in propagating it easily from cuttings of the young wood.

GARDENS AND GARDENING IN AUSTIN, TEXAS.

BY P. H. O.

Of all the plants and shrubs that are cultivated for ornament, none takes such a prominent place as the Rose. People have tried shrubs, such as are cultivated in colder countries than this, but many of them die during our hot Summer months; and shrubs and trees from warmer countries, most of which are killed by frost in Winter; but the Rose stands all this, and not one has been found yet too tender for our climate. Especial favorites are the Noisettes, Teas, Bourbons, and some of the Bengal varieties, with a few Hybrid Perpetuals, such as La Reine, Giant of Battles, La France, Boule de Neige; all these are free bloomers, blooming at any time in the year when heat and moisture are not in excess or wanting. Nearly all other Hybrid Perpetuals are shy bloomers with us, as sometimes in April, our Rose month, when the weather is unfavorable, and an early drought and cold dry winds blowing, the flower-buds will not open; while those enumerated above bloom any time in the year when the conditions are favorable. But I gathered two large bouquets of Roses once on the 15th day of January.

The Oleander is not hardy, and if planted out must be protected, or the frost will kill it. In the capitol grounds, where there are many, they are protected every Winter by being wrapped up with mats and carpets.

The Pomegranate is hardy, so is the Fig, but the latter needs a sheltered place, or a late frost may spoil the first crop. The former is only cultivated for ornament, as the fruit is never seen at the fruit-stands.

Jasminum officinale is hardy, but of the more tender kinds only J. revolutum succeeds tolerably well out doors.

Camellias are difficult to cultivate even in pots, so culture in the garden is out of the question; the leaves soon lose their leathery texture and become hard and get dry at the edges.

Magnolia grandiflora, though indigenous to Texas, growing abundantly on the sea coast near Houston, 150 miles from this place, behaves in the same way; the cause of it must be the dryness of the air. Houston sends up in Spring time baskets full of these flowers, which the boys sell in the streets for fifteen cents apiece and more.

Solanum jasminoides does well outside, so would also Passiflora cœrulea, if it was not for a host of brown caterpillars with which it is covered during Summer; the butterflies from which they come are light-brown with black spots, and these never deposit an egg on any other plant as long as there is the least bit of green left on this plant.

Lantanas are mostly hardy, though some varieties are benefited by a little protection during Winter; they evidently enjoy our warm sun, unless they get too much of it in July and August, when they quit flowering until after the Fall rains if they come early enough.

Verbenas do not often survive our Winters. These little wretched things have continuously to struggle between being roasted or frozen.

Only two Yuccas are cultivated, Y. gloriosa and Y. draconis; the former is a beautiful sight when in bloom, in April, with its hundreds of creamy white flowers; the latter flowers in July.

Dracæna Draco and Phoenix sylvestris I planted out, but both perished; they had not rain enough in Summer, and too much cold in Winter; but a citizen has two plants of Phoenix dactylifera in his garden several years old, raised from the seed of dried Dates, which hitherto have stood all the vicissitudes of our fickle and extreme climate.

Bananas may be grown on the south side of walls and houses, and if the plant is protected during Winter, fruit may be raised sometimes, but it is cultivated for ornament only, and sparingly too.

Cape Jasmine is seldom cultivated in the garden; it stands most of our Winters, but is sometimes cut down, and then our dry Summers do not seem to suit it.

Zonale Geraniums will stand less frost than Verbenas, so we must class them as not hardy; though it seems strange to me that Bryophyllum calycinum, of which I planted out some plants on the north side of a fence, where it propagated itself very freely, passed several Winters with but little injury.

Cassia corymbosa and C. laevigata seem to feel quite at home in our climate.

Along the sidewalks and other vacant places in the city we often meet with a peculiar small tree with thorns and green bark and yellow flowers; it is the *Parkinsonia aculeata*, a denizen of the lower Rio Grande valley, but acclimatized in Austin and other cities of Texas. It is a leguminosæ, suborder cæsalpineæ. Its pinnate leaves are over a foot long, leaflets very small and numerous, quarter of an inch long and one-sixteenth of an inch wide; the mid-rib of the leaf is flattened, and when the leaflets drop off, which they easily do, the leaves, or rather leaflets give the tree the appearance of being clothed with grass instead of leaves. It flowers abundantly from early Summer to late in Fall, and at the date I write this, October 24th, there is in my yard one of these trees covered all over with flowers.

Another stranger, is the so-called Willow Catalpa, *Chilopsis lineata*, which is frequently seen in gardens and yards. It is a straight and tall tree, growing over twenty feet high; its leaves are small, resembling Willow leaves, hence the name; it has terminal flower-spikes of a purplish color, which are in shape like those of the Catalpa, and blooms from May to Autumn, never suffering from dry or hot weather.

Cæsalpinia (Poinciana) pulcherrima is hardy, and *Daubentonia magnifica* also, but the last named does not seem to do so well as the former.

Of Holland Bulbs, Hyacinths and Polyanthus *Narcissus* do best. Our early Summer forces the Hyacinths into bloom in March or even sooner, so the early varieties are the best. *Roman Narcissus* bloom, if planted in October, usually about New Year, when they are cut down by frost if the flower-buds were not already before.

Only the early varieties of Tulips will do here. I planted once a dozen late flowering, on the north side of my house, but I did not get as many bulbs when I took them up as when I planted them, and the next year even these perished, our Winters are evidently too warm and too short.

I am only acquainted with three species of Lilies that stand the chances in the garden: *Lilium candidum*, *L. tigrinum*, and *L. longiflorum*; *Lilium speciosum* and *L. auratum* flower too late in the season when the sun is too hot; and of the other species I do not know that an attempt has been made to cultivate them except as pot plants.

THE RETINOSPORAS.

BY S. C. MOON, MORRISVILLE, PA.

The Retinosporas are a class of evergreens

well deserving of more attention, and of much more general distribution than they have yet received.

Most of the varieties mentioned in this article were introduced from Japan, and have been in circulation among the nurserymen in this country from ten to twenty years. It is surprising, so long after introduction, that many persons who are tolerably well acquainted with ornamental trees, know very little of the habits and merits of the Retinosporas, or entertain very incorrect ideas about them. An erroneous opinion seems to have gained credence among many gardeners and nurserymen, as well as with others, that they are not entirely hardy, and will not stand without protection through the winter. This is a very mistaken prejudice, which should be corrected.

Every one of the varieties herein described, is entirely hardy in the latitude of Philadelphia, and we believe would be, as far North as Boston, or further. Perhaps some of our friends from that section, can tell us of their experience with them.

We have had most of them standing on our grounds, unprotected, for the past ten or twelve years, but in all that time, have never seen one of them injured in the least by heat or cold, except in the case of *obtusa nana aurea*, as noticed below. They appear to be as hardy as Hemlock or Norway Spruce, or any others of the old and popular evergreens, and are of equally easy culture. They thrive in any good soil or situation where other evergreens will, and may be confidently recommended, and planted almost anywhere.

We would especially recommend *R. plumosa*, *plumosa aurea*, *obtusa nana*, and *squarrosa*, for planting in small yards and cemetery lots. They are all moderate in habit of growth, and will endure shearing well, consequently can be kept within reasonable size. *Plumosa*, and *plumosa aurea*, are pyramidal in habit, attaining a height of six or eight feet in as many years. They are quite similar in nearly all points except color. Their foliage is fine and soft, giving the tree the appearance of a heavy plume, as the name implies.

The color of *plumosa* is light green. *Plumosa aurea*, is one of the most beautiful of the golden evergreens at all seasons of the year, but especially in Summer. When the tree starts to grow in the Spring, the young shoots are a rich shade of golden yellow, and it calls forth al-

most universal admiration. This golden appearance is retained with but slight diminution in freshness and beauty throughout the year. It is a most valuable acquisition to the list of Golden Conifers.

R. squarrosa is of a glaucous color, bearing slight resemblance to some of the Junipers, but the foliage is much softer and finer. It is a good grower, and when once established in good ground, has a tendency to lose its true character.

R. obtusa, is one of the most rapid-growing evergreens. It attains a height of twenty or thirty feet in a very few years. The branches are long and spreading, in the style of Norway Spruce, making it a large and stately tree, which may be very properly contrasted with the Norway, or substituted for it. It is of a yellowish green color, and does not change during the Winter. When growing rank in rich soil, it gets open and straggling like the Hemlock, and needs trimming occasionally for the first few years, to make it bushy and compact.

R. obtusa nana, is a dwarf variety of the preceding. It is a very singular and beautiful tree, of a dark green color which is retained with remarkable brightness all Winter. With the assistance of an occasional shearing, it makes a singularly neat, compact and handsome specimen. This, and *plumosa aurea*, are the gems of the whole collection.

None of the varieties previously mentioned appear to their best advantage, when growing very rapidly, as they get too tall and straggling. They need occasional trimming to keep them compact and in good shape.

R. pisifera and *pisifera aurea*, are quite similar in nearly all points except color. They are more dwarf and dense in habit than any of the preceding. *Pisifera*, forms a low rounded head of greenness, while *aurea* differs from it in being variegated with delicate yellow tips. They are both neat and unique little specimens, well deserving of a place in every collection.

R. obtusa nana aurea, is another dwarf golden variety. It is a feeble grower, and should be grafted on some of the stronger varieties, and needs careful nursing for the first few years, until it gets a start in the world. It is then as hardy as any of them, and if grown into a good specimen, will well repay for the pains taken with it.

R. lycopodioides, is well named, as it bears a striking resemblance to the tree *Lycopodium*, and looks more like a hothouse plant, than a

hardy tree. The branches are covered all over with the thick, dark green, plicate foliage. It is a very singular and beautiful evergreen which must be seen to be fully appreciated. Every admirer of curious trees should have it. There are several other varieties of Retinosporas cultivated and offered by nurserymen, all of which are good and desirable trees, and without which, no good collection will be complete. We have only attempted to call attention to a few of the best, which are most desirable for general planting.

EDITORIAL NOTES.

FUCHSIAS AND IVY. By selecting kinds adapted to open air flowering, and associating them with Ivy, an English correspondent of the *Garden* finds an admirable combination in Summer gardening.

JAPAN BULBS.—These will perhaps take rank in importance with Dutch bulbs. Enormous numbers are already annually imported. Good *Lilium auratum* were recently sold at auction in New York.

THE PLANE AS A STREET TREE.—It seems strange, considering the number of years the Plane tree has been known in England, that the discovery is but recently made that the Plane is the best of all shade trees for London streets.

MEMORIAL TREES.—The practice of planting trees as memorials of visits, is common in England. At a recent visit to the Duke of Roxburgh, Queen Victoria planted a Deodar Cedar.

NEW OR RARE PLANTS.

PUSCHKINIAS.—Of this pretty genus of hardy bulbs the *Garden* says:

"The species belonging to this small but beautiful genus of Lilyworts much resemble some of the Squills in habit and aspect, but differ from them, and, indeed, from all other hardy members of the Lily family, in having a small, six-lobed corona springing from the inner base of the divisions of the flower, and united into a short tube, whilst in *Scilla* the divisions are cleft to the base. Only three species of Puschkinias are known to us, two of which, with one variety, are now in cultivation. Though introduced many

years ago, they are still rarities in many gardens, a fact to be regretted, as they are amongst the earliest as well as the most beautiful of Spring flowering bulbs, and the fine effect which they produce in the open garden can scarcely be over-estimated when seen in combination with the host of fine plants now in cultivation which flower about the same time. All the Puschkinias are perfectly hardy, and of the simplest culture. The soil best suited to them is a good sandy loam, and when once established they should not be disturbed, except for taking off small bulbs for purposes of propagation, which may be done whilst the bulbs are at rest. In some seasons seeds are produced, which should be sown as soon as they are ripe; flowering bulbs may be obtained in this way in three or four years."

DWARF PAMPAS GRASS.—The dwarf Pampas Grass exhibited by Mr. C. Noble at the last meeting of the Royal Horticultural Society, under the designation of *Gynierium argenteum*, will be found of considerable value in small gardens in which the normal form would, owing to its gigantic size, be out of place. This dwarf variety attains, when fully developed, a height of five feet, and differs from the species in size only.

ROSE JULES CHRETIEN.—Messrs. Aug. Rölker and Sons, send us a colored plate of this new Hybrid Perpetual. It is in the way of the well known *Geant des Battailles* in the color and form of the flower, and measures four and a half inches across.

MAGNOLIA STELLATA.—In the September number of the *American Agriculturist* is an article evidently from the pen of that excellent botanist Prof. Thurber, which shows that the *Magnolia* going out in the nurseries as *Magnolia Halleana* is really an old species named *Magnolia stellata*.

IMPROVING THE CHRISTMAS ROSE.—A German florist has succeeded in breaking up the *Helleborus niger* into a great number of beautiful varieties. A colored plate before us represents them as purple, white, yellowish, and many with rose and white in many mottled and blotched ways. It is a very good beginning in the improvement of an old and popular flower.

SINGLE DAHLIAS.—The Dahlia seems to have been improved in the double direction, as far as the florist can push it. He is now at work on the single ones. Some remarkably beautiful ones are said to have been produced the past year in England.

SCRAPS AND QUERIES.

BEDDING PLANTS AT HOLLYWOOD.—"Gardener," Pottsville, Pa., inquires: "What is the secret of growing one million bedding plants under 40,000 square feet of glass, as this gives twenty-five plants to each square foot?" When in England last, in 1877, the writer was astonished at the immense number of bedding plants turned out from places with comparatively little glass. In one case 25,000 plants were employed and there was but one small greenhouse, and a few frames. In this case, we saw that an immense number were set out of cutting boxes, direct to the beds. The manner of doing the work at Hollywood, would certainly form an interesting chapter.

ERIANTHUS RAVENNÆ.—Mrs. S. E. B., Houston, Texas, writes: "I mailed you to-day a plume of *Erianthus Ravennæ*, one of fifty that grew upon a plant two years old. I think they dried nearly as fine as the Pampas, but not so graceful a lawn plant."

[The *Erianthus*, is usually of a light brown, with us. These specimens were as silvery as the Pampas grass, though as our correspondent remarks, it is not quite equal to the Pampas in some respects. It is a noble grass, and its thorough hardiness, is a point over the Pampas, in its favor.—ED. G. M.]

LAWNS.—Gardener, Baltimore, Md., writes: "Will you kindly refer me to the best treatise upon Lawn Culture, especially with reference to keeping green during Summer droughts, and the exclusion of Crab Grass, and other intruders in Autumn? Is heavy fertilizing desirable? Any danger of rendering grass coarse thereby? I have stiff subsoil."

There is no special treatise that we know of, but, on a stiff subsoil it is easy to have a lawn that will not dry out in Baltimore.

First, subsoil; that is to say, stir up the soil twenty inches deep. There are two sets of roots to grasses, those which go deep down in search of moisture, as the branches of a tree go upward; and those which keep near the surface, hunting for food, as the leaves make food for the tree. For the sake of these moisture collectors, the deeply loosened soil will hold something all the season through.

Secondly, use pure Blue Grass, and nothing else, and sow it thickly. No grass keeps so

green through hot weather in our climate, as this. It will form a dense mass in time, and so thick that it will not let any other grass grow.

Thirdly, though we say sow only Blue Grass, pure and simple, we will emphasize it by adding, avoid all "mixtures," all clover, and such creeping things. All these easily burn out in hot weather, and their only known use is something like that of Satan in human things, to keep the world from becoming too good. These things struggle with the good grass, and keep it in check, but we do not want it checked.

Fourthly, as to Crab Grass, that vile pest of American lawns, it is hard work fighting it when it once gets in, and the best way is still to encourage its enemy, the Blue Grass, to fight it. Sow Blue Grass among it, and when you mow, leave the grass at each mowing as long as you dare, without its looking untidy. Very close cutting with a mower, is good luck to the Crab Grass. It will soon overpower and choke out Blue Grass, when you help it in this way. Con-

tinued close mowing is extremely favorable to nasty little creeping weeds.

Fifthly, in sowing grass seed, you may have a few Oats or Rye with it, in Fall sowing; as the leaves falling keep the young plants of grass against thawing and freezing out; but keep them cut down in Spring; and never sow Rye or Oats, or anything with the grass in Spring, for any reason whatever.

Sixthly, weeds, the first year or two, are apt to be troublesome, but keep them down by the scythe. Generally the second year the grass will crowd them all out.

This is about all there is in making a first-class lawn. Of course there is much of detail which only experience can work out. The surface must be made very level; but too much time is often spent on this with hand rakes, as a good and judicious rolling will often do just as well, but these sort of lessons no writer can teach. They come only to those who, at work, have a keen appreciation of cause and effect in the work they are doing.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Many of our readers have only a few window plants. These are often kept too warm, too wet, have too little sun light, and have too many insects. In towns, in addition to all these, they have often too much of the fumes of burning gas. Leaks or escapes from the gas pipe is a well known injury to plants, but it is not so well known that plants suffer, though in a less degree, from the common burning of coal gas. The trouble with most room cultivators is to know when plants get too much attention. Too many insects are easily known, one—a single one—is by far too many. We still think there is nothing like coal oil to destroy all kinds of insects. A very little—just enough to make a colored scum on the surface of a tub of water is enough, and in this the insect covered plant may be dipped, inverting the pot and plunging only the plant, and not the pot

of course. If too much oil is used the plant may be injured. Too wet is when a plant seldom gets dry—a healthy plant should get dry, and have light dry looking surface soil, every two or three days; as to heat, a temperature of about 55° or 60° is best for room plants, below that they do not flower freely, above they grow weak, especially if they have not a great deal of sunlight. Indeed heat should be in proportion to direct sunlight on the plants.

Where the air is dry in rooms or greenhouses, frequent syringings are of much benefit to plants. Besides, cleanliness keeps down insects and checks disease in plants as in animals. Most old fashioned lady gardeners (and may we ever bless them for the many lessons they have taught us,) take every opportunity to set their window-plants out of doors whenever a warm shower happens to occur. In Winter a rain at a temperature of 40° or 45°, which often occurs, might be called a "warm shower." Cold water does not have

half the injurious effect on plants that cold air has. When plants get accidentally frozen, the best remedy in the world is to dip them at once in cold water and set them in the shade to thaw.

It is better to keep in heat in cold weather by covering, where possible, than to allow it to escape, calculating to make it good by fire-heat, which is, at best, but a necessary evil. Where bloom is in demand, nothing less than 55° will accomplish the object; though much above that is not desirable, except for tropical hot-house plants. Where these plants are obliged to be wintered in a common green-house, they should be kept rather dry, and not be encouraged much to grow, or they may rot away.

Ferneries are now so deservedly popular, that we must have a word to say for them at times, though their management is so simple, there is little one can say. It is probably their ease of management, and the great results obtained for the little outlay of care, that has rendered them so popular. It should not, however, be forgotten that the cases in which they are enclosed is not to keep out the air, but to keep in the moisture, as Ferns will not thrive in the dry atmosphere of heated rooms. A few minutes' airing every day will, therefore, be of great benefit to them. Decayed wood, (not pine), mixed with about half its bulk of fibrous soil of any kind, and a very small proportion (say a tenth of the bulk) of well-rotted stable-manure, makes a good compost. Most kinds particularly like well-drained pots. This is usually effected by filling a third of the pots in which the Ferns are to grow with old pots broken in pieces of about half an inch square, on which a thin layer of moss is placed, before filling the pots, to keep out the soil from choking the drainage.

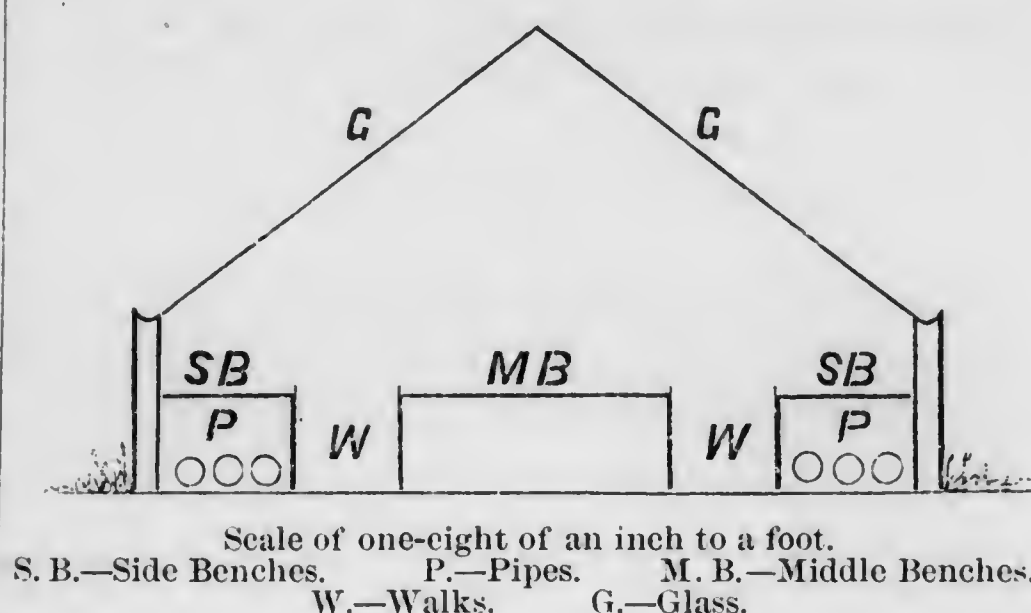
COMMUNICATIONS.

A MODEL GREENHOUSE ESTABLISHMENT.

BY WM. HALL, FULTONVILLE, N. Y.

The other day, being in New York, I called over to see the new greenhouse erections that I had heard of being made by Peter Henderson, on Jersey City Heights, thinking they might interest some of your readers as they interested me. With your leave, I will give a brief description of plan and extent of this establishment that now covers a space of 300 by 400 feet, an area of 120,000 square feet, or nearly three

acres of greenhouses and pits, and which, I presume, is now the largest on this continent. Mr. Henderson, as it is generally known, was one of the first to adopt and recommend the low, narrow span roofed pits, joined together on what is known as the "ridge and furrow plan," but this season he has removed all that was left of that class of houses, and has erected in their place sixteen houses, each twenty feet wide by one hundred long, and it is principally to describe these, that to me seem models of greenhouse structures, that I write this. I send a sketch of an end section, giving height of walls, &c., which will give an idea of how they are constructed.



These sixteen houses, which form one ridge and furrow block, have their two outer walls built of hollow brick twelve inches thick, and that portion of the ends not covered with glass are also of brick; the inside gutters resting on brick pieces. Every foot of the wood work is of Yellow or Georgia Pine, both inside and out. One of the most important improvements in the construction of these houses is the construction of the benches, which are formed of heavy roofing slate, 10x18 inches; these are laid on Yellow Pine bearers and covered with half an inch cement, so as to make them completely watertight, except at points where the water can be drained off at pleasure. These, Mr. Henderson assures me, have cost only about thirty per cent. more than the ordinary board benches, and he calculates that they will hold without repairs for twenty years.

The packing shed and offices, 350x20 feet are at the north end of this range, under the flooring of which are the boiler pits, and here a precaution is taken that is worthy of imitation, every boiler pit being arched with brick, resting on iron bearers, so that there is no possibility of fire occurring from the furnaces. The different temperatures necessary for the different

classes of plants is graded by the number of pipes in each house, as all the houses are of the same size. That for tropical plants, such as Dracenas, Crotons, Palms, &c., have ten pipes in each house, giving an average night temperature of 70°; Bouvardias, Begonias, &c., eight pipes, average night temperature 60°; Tea Roses, such as Bon Silene, Niphetos, Pearl des Jardins, and others requiring high temperature, eight pipes, average temperature 60°; Pelargoniums and all classes of tri-color Geraniums, six pipes, average temperature 55°; Zonale Geraniums, Verbenas, and Petunas, five pipes, giving 50°; Roses and Carnations which are being kept dormant, four pipes, giving an average of 40°; this grading the number of pipes for the different temperatures, greatly simplifies the work. These pipes are placed under the side benches, which leaves the large space under the centre table to be used for placing bulbs and such plants as do well in partial shade. In this new range are also the propagating house for cuttings, and propagating house for seeds. The cutting-house, 20x100, is shaded by the French Lattice Shadings, which are drawn up and let down by cords and pulleys from inside. These work so satisfactorily that Mr. Henderson proposes to use them next summer on all his houses needing shades. One greenhouse, 20x100, is used exclusively for seeds, and was to me, one of the most interesting features in the whole establishment, for I never before saw such a variety of delicate seedlings, so entirely free from fungus and damp. This exemption from damp, Mr. H. attributes to the use of these large and airy houses, where the air is never allowed to stagnate, for ventilation, less or more, is kept on at all times. The night temperature for both the cutting and seed propagation averages 60° at night with ten degrees higher in day time, slight ventilation being given in both at night. On the right of the mid-entrance are four greenhouses, three of them 20x350 feet, and one for Summer propagating facing north, 10x350. The three large houses are built on the two-third span plan, that is, the long southern angle is some eighteen feet, the north angle nine feet. These houses are now filled with Roses, Poinsettias, Bouvardias, and such articles grown for Winter flowers. In reply to the question, whether he considered these houses with the long angle to the south, or those having equal span roof and with equal slopes to east and west, were best, Mr. H. said, that for choice he would prefer the houses with

equal slope to east and west, though he did not think it very material which were used.

Although all of the greenhouses that are heated have fixed roofs, yet a block of six houses, each 100x11, are used without fire heat, in which all kinds of half-hardy plants and bulbs are heeled in sand, so that orders can be got at under cover in all weathers. In these houses, too, many plants are kept dormant until wanted to forward in heat, in far better condition than they would be if in sunk frames; for kept in these cold houses above ground they are kept dry—an important point with such plants in the Winter months. Although no vegetable market gardening is now done by Mr. Henderson, yet as a remnant of his old business, I found over 1,000 sashes covering cold frames, in which were planted hundreds of thousands of Cabbage, Lettuce and Cauliflower plants, these are grown to supply the smaller market gardeners, who have not yet the facilities for wintering themselves.

Large as Mr. Henderson's business now is, he informs me that, though he personally superintends it all, it is now done with far more ease than when it was only one-fourth the size. Everything is so systematized, that the responsibility is divided by the heads of the different departments; for example, the propagating is under charge of one man having three assistants; the potting-off, by one man with two assistants. One hand, specially attends to ventilating, one to watering, one to firing, and one to labeling. Then there is a corps of about twenty hands as order clerks and packers, and the balance of the hands are employed in the various duties pertaining to such a place. About eight or ten young men are always here under instructions, and are mostly young men of fair education and intelligence, for none others are received as apprentices. These usually remain from two to four years, and go out to take charge of some florist's establishment, or to begin business for themselves. It may be thought that this apprentice system if generally adopted would have a tendency to overstock the market with gardeners and florists, but if this standard of education was always insisted upon, it would tend to elevate horticulture, and thus popularize it in a way that could never be done if the majority of its members were mere diggers and delvers, which, it must be confessed, is the condition of the majority of our so-called gardeners in America today.

LADY GARDENERS IN PITTSBURGH.

BY EDWARD S. KOETHENS, PITTSBURGH, PA.

In your notice of Dr. Johnson's book "Winter Greeneries at Home," in the November number of the *GARDENER'S MONTHLY*, you mention the fact of its being strange that Pittsburgh ladies should have to be taught by a gentleman in this matter. In response to this, I would just say a word in defence of the ladies. The ladies of Pittsburgh have a great deal to contend with from the atmosphere, which is always so freighted with soot and smoke that the sun seldom penetrates through it in the Winter, except for a short time at noon. This causes so much more work in attention to the plants than is required in other cities, that much of the enjoyment is detracted from the work. Besides, these difficulties, which are often insurmountable, cause success to be not at all sure, even with the greatest care. It is only those who live in the cleaner parts of the two cities (Allegheny and Pittsburgh) who are really successful. The author of the book in question is one of these. In another part of your notice, you mention the Winter flowering of home-grown Lillies of the Valley (*Convallaria majalis*) pips, saying, that to your knowledge, it has not yet been done. To this I would say, that, being connected with one of the largest Florist establishments in the city, I have had opportunity to see it done, with great success, several years in succession. We always use only the strongest clumps, and treat them the same as we do the imported ones.

FERN CROWING.

BY ARTHUR M. KIRBY, JERSEY CITY HEIGHTS, NEW JERSEY.

The following points, obtained from an old German Fern grower, may be useful to amateurs who experience trouble in evenly sowing fine seed, such as Fern spores, *Lygodium scandens*, *Calceolaria*, etc. Take a sheet of white pasteboard, rub the seed lightly over it until it covers the exact circumference of the pot it is to be sown in. If the board is not too smooth the seed will adhere to it, so it can be inverted on the pot, and by tapping gently it will fall as evenly as it was rubbed on the pasteboard.

To get the moist air necessary to grow a small quantity of fern spores, etc., where it is not justifiable in keeping a whole house in the proper conditions, fill a pot one-third full of potsherd, on this put the peat, or whatever the seed

is to be sown on; then place it in a pan containing just enough water to reach the top of the potsherd, and keep it covered closely with a pane of glass.

Fine green wire-netting placed over delicate seedlings will protect them from insects, and give just the right shade without drawing them, as other shades are apt to do. Tuberous Begonias, etc., which are usually so difficult to raise from seed, can be grown without trouble by using it; if doubled and put over newly sown seed, they will germinate one-third quicker; the cost is only thirty cents per yard.

Seedlings in general should never be watered later than an hour or two before sundown, as the water will not evaporate readily, and the damp surface is apt to cause a fungus, which will frequently "damp off" every plant during one night. A pot of seedlings, comparatively dry, left by the side of one watered late, will be in the same condition in the morning, while the latter will frequently be entirely gone.

EDITORIAL NOTES

HONORS TO A FLORIST.—It is said that the English florist Mr. John Wills, has been offered by the French Government the decoration of Knight of the Legion of Honor, in consideration of the remarkable beauty and continuous perfection of his tropical garden in the Exhibition. It is not likely the English Government will permit him to accept the decoration.

THE WHITE-FLOWERED OLEANDER.—This is largely grown by Mr. Wills for decorative purposes. The plants, which are chiefly imported ones, are grown in a moist, warm temperature near the glass, and thus treated they make handsome bushy plants loaded with large trusses of snowy blossoms. This white variety appears to flower more freely than the rose-colored kind, and its blossoms in a cut state are much more valuable.—*Garden*.

SENECIO SCANDENS.—This is known to florists as Parlor Ivy; the new one *S. macroglossum* is known in England as Cape Ivy.

EUPHARIS AMAZONICA.—Mr. S. S. Price of Philadelphia, has had wonderful success in growing this plant. His plants have flowered three times this season, and about the end of November he had at one time three hundred blooms open.

IMPROVED FIRE-BARS.—*Iron* tells of a new style of fire-bar devised by an English inventor to secure fuller combustion of fuel. The peculiar feature of their bars is the shape of the spaces left for the air to pass through. These, instead of being straight, are of a wave-shaped form, the convex parts of one bar fitting into the concave parts of the adjoining one, and the proper distance being regulated by the width at the ends in the usual way. Additional oblong air-spaces are also provided, and placed in the spaces between the wave-shaped openings. The under side of the bars is made as thin as possible, so as to give the air ample inlet area; and when they have to be fitted against the sides of boiler-flues, a set of tooth-like projections is cast on to the edge of the outside bars. Any portion of the length of these teeth can easily be cut off by a hammer and chisel to effect the desired fit. By the use of these bars the inventor claims a large saving in fuel.—*Polytechnic Review*.

HEATING BY LAMPS.—It has often seemed to us practicable to heat bay-windows and plant cabinets quite sufficiently by lamps. On this a correspondent of the *Garden* gives her experience:

"As no one has ventured to reply to 'J. L.' (p. 275) respecting this subject, perhaps an amateur's experience might be useful. My plant house, a lean-to, fifteen feet by nine feet, was kept warm during two Winters by means of a paraffin lamp, costing 17s. 6d., burning petroleum at (at that time) 2s. 3d. the gallon—much less now, I believe. It had a flat base or well about as large over as a dinner plate, an upright iron body, and a domed top pierced with holes. The well was easily filled by a side tube, and the wick, having the charred part cut off occasionally, was quickly lighted or extinguished, and in summer the whole affair could be removed. No smell could ever be detected; and what I would like to direct particular attention to is, there was not the slightest sign of blight of any kind during those two Winters, and the plants were perceptibly of a brighter tone and crisper than they otherwise would have been. Two faults were noticeable; firstly, the expense (a Winter's night of twelve or fourteen hours costing 6d. or 8d., as dear, or dearer, than coals); secondly, the power of resisting cold. Rarely could the warmth inside the house be made to exceed that of the outside 10° or 12°. Suppose a frost occurred outside registering 30°, the inside temperature would be about 40°. If it has been 20° outside, then the

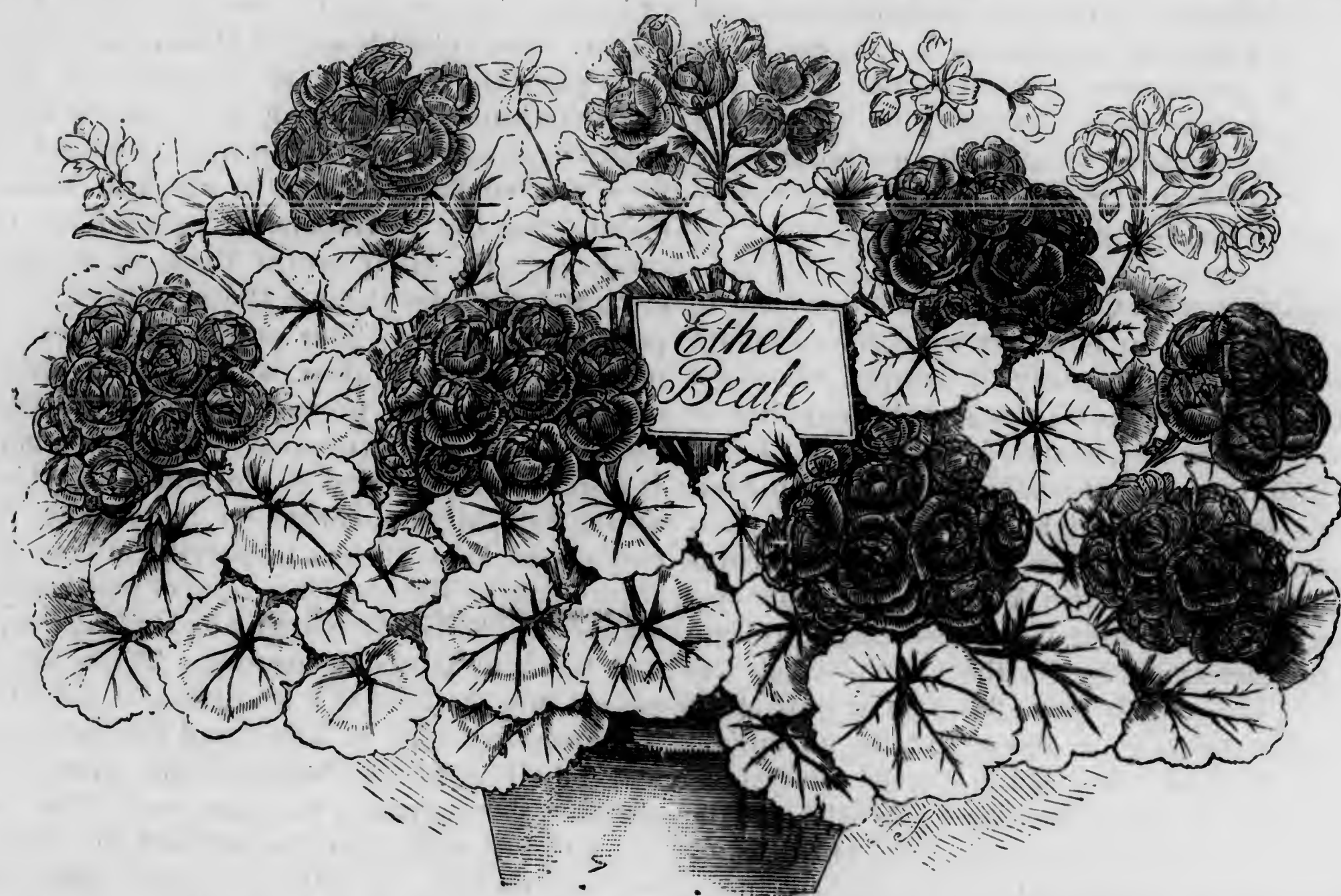
inside would have ice over the roof, and the thermometer 32°. I therefore, discarded the lamp and tried quite a different kind of heating, the result being extremely interesting, though not, perhaps, sufficiently so for the generality of your readers."

ROSE CUTTINGS STRUCK IN HEAT WITH THE LEAVES LEFT ON.—This method of propagation is largely practised by professional Rose growers. The operation may be performed from the end of July to the end of September, and even during the Winter. In certain establishments the propagating house is near the Rose nursery, in which the different varieties are all grouped together. Each plant bears the number belonging to its particular variety in the catalogue, so that the propagator whose duty it is to cut the slips passes from bed to bed, collecting from each of them his bundle of shoots, to which he immediately ties the corresponding number in the catalogue. He lastly wraps them in a damp cloth and deposits them in the entrance of the propagating house. This entrance is a sort of porch, with a second door, which is built either outside or inside the propagating house, so that the two doors are never open at the same time. It also serves as a kind of workshop, in which all the necessary appliances for propagation by cuttings are kept, such as prepared heath mould, thumb pots of different sizes, a set of punches for numbering the labels, a mallet for striking them, and the lead labels themselves. These labels are cut into the form of a long triangle, the base being one-half inch in width, and the sides one and a half inches in length. The number is struck upside down, on the larger end of the label, which is stuck into the soil with the sharp end downwards. A tray, too, is necessary for carrying the potted cuttings backwards and forwards. It should be made of Pine, and should measure two feet four inches in length by one foot four inches in width, with edges one and a half inches high on the long sides, and six inches high on the narrow ones. The edges on the narrow sides are provided with holes, so that they serve for handles for carrying the tray to and fro. The shoots are cut up into slips, each having three leaves and, consequently, three buds; the joint of the lowest slip is allowed to remain on after having been pared with the pruning knife. The shoot is cut at right angles to its axis, about the twentieth of an inch below a bud. The two upper leaves are generally cut off, as they would

be inconveniently in the way when the cuttings were placed under the bell-glass.—*Garden.*

NEW OR RARE PLANTS.

GERANIUM ETHEL BEALE.—We noticed some time ago that from the description in the English papers, this variety must have the merit of novelty over many new forms. By the kindness of the Bellevue Nursery in Paterson N. J., we



have the opportunity of giving our readers a representation of the plant itself, which fully bears out the good opinion we formed of it.

BOWIEA VOLUBILIS.—Climbing amongst low shrubs on the dwarf wall of one of the houses are some specimens of a Cape bulb, *Bowiea volubilis*. This very strange plant, although allied botanically to the *Drimys* and *Scillas*, is totally unlike them; indeed, in general appearance, it exhibits no resemblance to any other plant whatever. Possessing little beauty, it is one of the most curious plants ever introduced into Europe, and consists of little more than a round, fleshy, green bulb, from the apex of which springs yearly a slender, twining, light green flower stem, six

or eight feet in length, which below, throws off an abundance of much branched, curving, flowerless branches, and above bears numerous small, greenish-white flowers. For the rafter of the cool greenhouse the long, twining flower stems of this plant will excite attention, even if only for their being so totally different from anything else in the vegetable kingdom.—*Garden.*

CUPHEA ROEZLI.—At the last meeting of the Germantown Horticultural Society, Messrs. Miller & Hayes exhibited a specimen of this new *Cuphea*. It proves to be a very good addition to this interesting class of Winter blooming plants.

Besides the novelty of the species, the plant was remarkably well grown, being about eighteen inches every way. It is a strong grower, and will make good specimen plants.

ADIANTUM PALMATUM.—This remarkably beautiful Maiden Hair Fern is thus described by B. G. Williams, of Upper Holloway, London, by whom it was introduced:

"This handsome and distinct species will make an excellent companion to *A. Farleyense*, owing to the large size of its pinnæ and the length of its fronds. It was discovered by M. Roezel at an altitude varying from 10,000 to 11,000 feet, in Peru; a fact of great importance, as it may be cultivated in a greenhouse temperature. Mr.

Moore says of this beautiful Fern: 'The rhizome is creeping, and the fronds are of an in- character of the rachides, most marked near the apex of the fronds and the rachides of the primary



definitely elongated form. A very noticeable pinnæ. The pinnules are herbaceous in texture, feature in the plant is the flexuose or zigzag smooth, large, from one inch to one and three-

quarters in breadth, distant and very distinctly stalked, the stalks varying from one-quarter to three-quarters of an inch, the terminal ones are usually wedge-shaped, while the lateral ones are usually truncate at the base, so as to become semi-circular in outline; they are deeply cut down into from three to five large lobes, which are again more or less parted; an oblong sorus terminating each of the divisions in the fertile portions."

SCRAPS AND QUERIES.

MEALY BUG.—A. A. B., Coburg, Ont., Canada, says: "I notice a letter in July number of *GARDENER'S MONTHLY*, from Dr. W. F. C., as to remedy of mealy bug. What proportions of Hellebore and whale oil soap he would mix, he does not say. It would gratify me, and I have no doubt many others, to know the quantities to mix."

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

GRAPES AND PLANTS.

BY JAMES HUNTER, JR., GLENDALE, MASS.

I have had very fair success in growing Grapes and plants in the same house, and will give my experience, hoping it may be of some benefit to J. C. S., of Hampton, Va. My house is about fifteen feet long, by about the same in width, and is an extension of the cold grapery, having a glass partition between the two, which I think is unnecessary, a double board partition would give it better protection. The boiler-house is at the other end, giving ample protection from the cold north-west winds. There was at one time six vines in the house, but one not being of a suitable variety, I took it out. The roots are all confined in an inside border, which gives me better control of the vines. At the back part of the house is a brick terrace about three feet high and five wide. On the top of this is built a common stair staging, on which I have been in the habit of keeping my plants over Winter, such as Geraniums, Roses, Carnations, Heliotropes and other half-hardy plants. I have never grown any plants that require much heat; my object being to keep the vines dormant, and the plants growing just enough to keep them healthy.

During the fore part of the Winter, and up to the time the buds on the vines begin to start, which is about the middle of February, I keep

the temperature as low as possible, say from thirty-five to forty degrees. I let the vines remain tied to the wires after pruning them in the Fall, as there is moisture enough in the house to keep them from being injured by the sun. They must be closely watched about the first of February, and as soon as the buds begin to swell, the heat must be gradually increased each day, keeping a spring-like temperature, and imitating nature as near as possible. When the buds break, and the shoots begin to grow, keep on increasing the temperature, just as if there were no plants in the house, until it reaches seventy degrees on a cloudy day. It will be found that by the time the temperature reaches 60° it will be too hot for the plants, causing them to grow faster than is good for them. I suppose I have the advantage of many persons, there being hot-water pipes in the cold-grapery. I can heat it up at any time, and as soon as I find that the plants are suffering, I turn on the heat and put all the plants in there; this gives them a cooler atmosphere, and is more congenial to their nature.

I am convinced that no one can be successful in growing Grapes and plants in the same house, unless they study the nature and requirements of each; for if the temperature is kept up as it should be for the Grapes, the plants will be permanently injured, and again, if the temperature is kept too cool, the Grapes will be a failure. I have no doubt that J. C. S., would succeed very well, if he would remove his plants to a cooler

atmosphere as soon as it is necessary to increase the heat, and for this purpose a cold frame would answer very well in his latitude.

There are other things that require close attention, such as ventilating properly; shading the plants from the sun, for the glass cannot be whitewashed, as the Grape vines require all the sunlight they can get; keeping the house clear of insects, particularly the red spider, which will give trouble if not kept in check. I find a very good way to do this, is to throw a small quantity of sulphur into the hot water pans on the pipes. I know the fumes arising from sulphur is not very agreeable, but it is better to suffer a little inconvenience in this way, than to let this pest get control of the house.

I would advise J. C. S., to take out his old vines, and plant young ones in their places; and as advised by the Editor, take the canes through the brick wall into the house, and train to the rafters; or if he prefers it, and has, or can make a suitable soil, plant the vines inside and train as above. Pinch out all the laterals, or branches that grow from the axils of the leaves, for I do not believe in the theory of pinching them back to one leaf, and when they start, pinch back again, and so on through the season; this is all humbug, pinch them out entirely, they are nothing but vexation, and of no mortal use to the vine. Let nothing grow but the vine, and be careful not to break it off or injure it in any way, as it is very tender. At the end of the season, if all has gone well with the vines, they will have reached the top of the house. When they have dropped their leaves, cut back to two good strong buds, this will give the roots a good start the next season, and give strength to the vines for their future work. This is the most essential point in successful Grape growing, whether inside or out. Give the vines a good start by letting them make good strong roots, and they will repay the time given them for this purpose.

In the Spring, when the buds begin to grow, save the strongest shoot for the new cane, and rub out the other, train to the rafters as above, pinching out all laterals. If the vines have done well, they should be about the thickness of a man's thumb, when the wood is ripe, and should be cut back to about four feet from the ground. When they begin to grow again in the Spring, let the shoots grow from the buds at the joints, but do not allow more than one or two of the clusters to mature. The top shoot should

be trained in line with the cane, as a leader, and must be brought into position gradually, being careful not to break it off where it joins the cane. The tips of the other shoots should be pinched off when they are about one and a half, or two feet long, or at the third leaf beyond the cluster, and pinch out all laterals, as they grow, except the last one; pinch back to one leaf each time it starts out. Cut back the shoots in the Fall, to two buds, and the new cane to six or eight feet from where the new growth commenced. The next Spring, let the outer buds on the spurs bear the fruit, and let the inner ones, next the canes grow for the next season; cut it back in the Fall to two eyes, and cut out the other near the spur just formed, and so on each season.

Too much care cannot be used in fruiting young vines. Many persons are in too much of a hurry to get a large quantity of fruit, and in that way ruin the vitality of the vines; this should be avoided as much as possible, by a systematic use of judgement in not allowing them to overbear. A young vine should never be allowed to bear until the third or fourth season, according to its strength, and then not more than one or two clusters; the next season double the quantity may be allowed to mature, and each season afterward increase the quantity as the strength of the vines will allow.

It would be impossible to have Grapes in cold weather, as J. C. S., proposes, as they can only be grown in a retarding-house, which must be kept cool as possible during the Spring, so as to keep the vines dormant and retard their growth. Plants could not be grown in such a house, because they would not get enough of sunlight, which is essential to their growth and health, and the fire-heat required to keep out frost, would force the vines into growth.

STRAWBERRY BLIGHT.

BY CHAS. BLACK, HIGHTSTOWN, N. J.

We hear complaint from all over our country about the above disease of the Strawberry plant, asking the cause and remedy of the same. It is the general opinion that it is caused wholly by a fungus attacking the leaf. This may be partly the cause, but is my opinion there are other causes. Having watched it for several years past, I have always found it worst, or of any account only in certain seasons, such as the past, when we have a fine March and April and the plants

start off finely, then a cold spell in May with frost, which checks suddenly the growth of the plants. The leaf spots and turns red, and by the time the fruit ought to ripen, the plant has no vitality left in it. Having frequently examined the roots, I have always found them infested with a blueish louse, sometimes so numerous that they cover the leaf-stems. This I think is one great cause of the trouble generally known as the blight. In favorable seasons, when everything conduces to the continued growth of the plants, the louse has no chance to gain any advantage over them; but, as soon as the weather is too cold or too dry with cold, they increase rapidly and suck all the life out of the young rootlets, which weakens the plants, and gives fungus or any other disease a chance to affect the leaf. Whenever the leaf is perfectly green the roots will be found all right, but when the leaf is spotted or red, early in the season, something is wrong at the root, and I have always found that louse there, at some time in greater or less numbers. I am aware that there is a sun-scald, which some varieties, such as Jucunda, are liable to, but I refer only to the blight that attacks all kinds. Nothing is exempt from it in some seasons. I do not say this is the cause, but as far as my observation goes, I have good reason to believe it is; and think if we can find a remedy to destroy the lice on the roots, we would have little or no blight on such hardy kinds as Wilson, Monarch of the West, etc. I have been trying liquid tobacco, which I think helped, but was not thoroughly effectual. I think, if those, whose plants get affected next May or June, will give them a thorough examination, they will find the roots affected as well as the foliage.

BETTER FRUITS ON OLD PEAR TREES.

BY GEN. WM. H. NOBLE, BRIDGEPORT, CONN.

I used to wonder much, when a fruit was said to become more luscious with the age of the tree. The truth came home to me very outspoken in a Pear tree which I planted for a gray Doyenne. It grew in an old nursery here, and had reached very good size. Though claimed as a gray Doyenne, and though a very fine fruit, it was not this kind. I have never seen its like, and know not its name. Its regular season is December, and it sometimes stretches into January, but about as often fails to put in an appearance at the table after November.

The tree was ten or fifteen years old, and bore a very fair, well-ripened fruit; it was carefully transplanted, with a mass of fibrous roots, into a deep made soil, piled over an old cow yard. It soon took hold, and started out with a new life and tremendous growth. In a year or two after, it bloomed out and yielded fruit in abundance, but they tasted more like a pumpkin than a pear. They were large and fair, but never got any more ripeness of flesh or taste than an Osage Orange. I tried it a year or two with the same ill luck, but all the while it kept up the same tremendous growth. From seven to ten feet in height it stretched up to twenty, and had girth and spread in proportion. I made up my mind that I must have been mistaken about the right tree, and that it was some other kind than that which had tempted me to buy at a large price, and to give great care to its transplanting. I could not believe that such a green, unripening, sour, gritty, black walnut kind of Pear could grow on the same limbs whose fruit I had eaten with so much relish.

The Beurre Giffard was about that time brought out as a fine early Pear—a quality which it has never belied. I wanted just that early Pear in that very place, to ripen before the cold northwest winds of Fall which so boldly strike could thrash off its fruit. In two years, every limb grew the Beurre Giffard. Its growth was healthy and fairly vigorous, but its early bearing trait, its drooping limbs, of less upright and stalwart growth than the stock, helped its prompt fruitage. It has borne me every season from its second year, a splendid crop of Giffards.

But here comes in another phase and service of the tree which I wish to note. Below the Beurre Giffard graft, the grafted limbs put out new shoots. These I let grow; year by year, they increased somewhat, but all, instead of that rampant upright growth, whose fruitage so puzzled and provoked, have stout, short jointed wood, which put out fruit buds right off. Even shoots, not over six inches in length, bear. So now from the same tree, every year I have, in July and August a full crop of the early Giffards, and from the old stock, a late October gathering of large, ovate and obovate, obtuse pyriform Pears. They ripen well, and mature into a rich golden rustidoat, and a fine yellow-fleshed late Fall fruit.

The cause of this change, as of that in many Pears, with the age of trees, doubtless is, that a

stalwart wood growth and rich fruit product, call for unlike qualities in the sap, and different organs and regimen for each. If those of one balance the other, all right; the tree grows and the fruit shows its quality: but if not, those which rule for the nonce the life and condition of the tree, do so at the expense of its other faculty and purpose.

Nature gifts the tree with power to hold back its fruiting till its wood gets stature, strength and volume to endure the strain of its fruit births and ripening. It is so in all life. It has in every form its age of puberty and life renewal. As a rule, all of a kind are wisely and evenly gifted for the purposes of their being. But now and then in the same families, there are marked differences of growth and fruitage. Some fruit trees, of the same species bear very early, while others as the Dix and Urbaniste, &c., among Pears, wait a long while before showing us a fruit.

The Bartlett I think about the most prompt of the Pear kind. Whether from the nursery, or grafted on older trees, it yields an early crop. Is not the reason of its tenderness, the strain of its early and overbearing? I have never known tenderness to show itself exceptionally on young trees of the Bartlett, or on its grafts before they began to bear heavily. I have had none die out, but they die by inches after bearing as they do, a load of fruit every year. I think such trees may be revived by stripping off the Pears for a year or two, or by severe pruning, cutting back boldly to induce new wood. Young side shoots on those decaying or wasting trees do not die or loose their tips till after much cropping.

SOME NOTES ON THE APPLE CROP OF WESTERN NEW YORK.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

Late frosts in the Spring, and severe wind storms during early Autumn, did much to reduce the crop, yet the yield has been very large. Including barrel, costing thirty cents, prices have ranged for picked fruit, from fifty cents for common, to one dollar for extra fine; the average price for good fruit being seventy-five cents. These low rates are due to a moderate shipping demand in consequence of a good crop East. Last Fall I could make a peck of Apples buy a bushel of Potatoes. This Fall I can make a peck of Potatoes buy a bushel of Apples. It has become

the rule that one year Apples are so high that few can afford to buy them, and the following year so low farmers can hardly afford to pick and haul them to market. The practical question growing out of this subject is, cannot something be done to change the bearing year. Experienced orchardists assure me they have produced this result by picking all the young fruit. The matter is certainly worth careful consideration and experiment, and particularly so in this State, with five counties so largely devoted to orchards, one county alone having sent to market in a single season a million barrels of Apples.

A large amount of Apples this season will be made into cider. One mill here intends to grind three hundred thousand (300,000) bushels, and three mills I hear are grinding eighty thousand (80,000), and a multitude of smaller mills will grind from five to fifty thousand bushels each. In our five great orchard counties there will be ground this season, according to the estimate of good authorities, more than a million bushels of Apples. This seems like a large estimate, but I am disposed to think it not greatly exaggerated. Cider makers here pay eight to ten cents per bushel.

AN EXAMPLE OF THE SUCCESS OF AN ORCHARD UNDER GRASS CULTURE.

BY JAMES M. HAYES, DOVER, N. H.

There has come under my notice within a year, an orchard of Baldwin Apple trees upon one of the rocky hillsides of New Hampshire, which has never been ploughed; the ground was unusually rocky, sometimes so much so, that the trees could not be planted in straight rows. Upon this land the trees were set, manured liberally, and it is to-day as fine an orchard as Eastern New Hampshire affords, and there are many good orchards here. Here is an instance where the grass theory advocated by the MONTHLY has produced good results, both of grass and fruit. But most of our farmers are so negligent of their orchards, if they leave them in grass, that the trees are soon stunted and die. Therefore, for those careless ones, there is no other course except to plough amongst the trees. But to him who believes in fruit culture, and who follows it as a business, or out of love for it, and who intends to give his trees as good care as he would his cattle, then he can raise trees in grass as well as elsewhere.

EDITORIAL NOTES

A LARGE RASPBERRY GARDEN.—Parker Earle, of Cobden, Illinois, has twenty-five acres of Raspberries grown for market purposes. He grows the Turner. It is pronounced a profitable garden.

FOREST ROSE STRAWBERRY.—Dr. Warder thinks this likely to supercede the Wilson's Albany as the standard Strawberry. Mr. Leo Weltz says the crop is generally half gathered by the time the Albany commences to ripen.

A LARGE APPLE TREE.—A correspondent of the *Massachusetts Ploughman*, calls attention to an aged Apple tree standing in the town of Weathersfield, Conn.—an English Pearmain—brought from England by Wm. Tryan, and planted on his (then) farm. It measures, one foot from the ground, ten feet and eleven inches in circumference. It yielded fruit, according to tradition for nearly a century before the revolution. It is in a good bearing condition, having borne excellent fruit the past year.

FORCING STRAWBERRIES UNDER GLASS.—A "fruit grower and farmer" writes to the *New York Tribune*, that "Mr. Meehan's view on Strawberries, under glass, may lead some one astray. I have seen the attempt made in hothouses, but never with success." Our "fruit grower" can not have had a very extensive experience. He might pay Miss Hettie Trimble, of West Chester, a visit to some profit.

THE GREGG RASPBERRY.—This variety, unquestionably the best of all the Black Caps, was found by a lawyer named Gregg, on the hills of the upper Miami, in 1868.

THE THWACK RASPBERRY.—Mr. Ohmer, of Dayton, finds this not so good in flavor as some other kinds, but an excellent traveller, and one of the best market berries he knows of.

CURRENTS IN CALIFORNIA.—Mr. W. B. West, who has recently been successful in adding the Currant of commerce to the list of fruits for cultivation, has just returned from an extended tour through Europe, in search of improved Figs, Grapes, &c., probably suited to the California climate. He reports that with the single exception of the nurseries of Transon Brothers, in France, he saw very few nurseries in Europe with which many American nurseries would not

contrast favorably in all except perhaps very rare hothouse plants.

GOOD PENNSYLVANIA APPLES.—Mr. H. M. Engle says that among the Apples that have proven valuable in our State are the following:

"Summer—Early Harvest, Early Strawberry, Primate, Summer Queen, All Summer, Red Astrachan, Duchess of Oldenberg, Sweet Bough, Summer Sweet Paradise. Autumn—Porter, Maiden's Blush, Summer Rambo, Fall Pippin, Jeffries, Gravenstein. Early Winter—Smokehouse, Rambo, Fallwater, Pittsburg Pippin, Winter—Smith's Cider, York Imperial, Newtown Pippin, York Stripe, Peck's Pleasant, Ewalt, Rome Beauty, Domine, Romanite, Yellow Bellflower, Winter Sweet Paradise, Tallman's Sweet, Lady's Sweet."

GOOD WISCONSIN APPLES.—The following is a list recommended by the State Agricultural Society: Five varieties, hardiness only test—Tetofski, Duchess of Oldenburg, Haas, Fameuse and Wealthy. For general cultivation—the above list with Walbridge, Red Astrachan, Utter, Westfield Seek-No-Further, Tallman Sweet, St. Lawrence, Willow Twig and Pewaukee.

CALIFORNIA GRAPES.—Enormous quantities were sent East this year, chiefly Flaming Tokays. It is said to have been on the whole, profitable to the shippers.

THE CHAUMONTELLE PEAR.—In those parts of our country where the Chaumontelle has been tried, it proves worthless. It is no sooner ripe than it is rotten. But there ought to be some spot over our broad acres just suited to it. It is a magnificent fruit in many parts of England. A fruit of the Chaumontelle Pear weighing upwards of twenty-one ounces, was exhibited at the recent exhibition of the Royal Horticultural Society of Jersey.

VEGETABLE WAX.—Mr. Loomis contributes a paper on the *Rhus succedanea* to the *California Horticulturist*, showing its adaptation to Californian culture. It would be interesting to know where it would succeed in the Eastern Atlantic States. A plant from seed brought by Commodore Perry's expedition, was growing with Mr. Berckmans at Augusta, Georgia a few years ago.

ORANGES AND LEMONS IN CALIFORNIA.—The catalogues of Californian nurseries present marked differences from those of the East. Before us is one which makes a specialty of Orange and Lemon trees. Plants are offered by the

hundreds, thousands, and tens of thousands, as our Apple trees are.

SLEEPER'S DWARF PEACH.—This was said to be only twenty-six inches high when four years old, and to have fruit of much better quality than the Van Buren dwarf.

JAPAN PERSIMMONS.—The California nursery catalogues are full of the Japan Persimmon. They issue colored illustrations, one of which exhibits the fruit as large as a full sized Baldwin apple, and as rich in color as a Trophy Tomato. They seem destined to play an important part in the fruit growing of the Pacific States. Henry Loomis has a paper in the *California Horticulturist* in which thirteen named varieties are described. In California it is said that the fruit of the Japan Persimmon "is not inferior in size or attractiveness to the Orange."

THE SEXES OF STRAWBERRIES.—The discussion on pistillate and staminate Strawberries, which so raged in this country a quarter of a century ago, and out of which the raising of that excellent hermaphrodite, Albany Seedling, took all the practical value, seems to have found a resurrection in England. The *Gardener's Magazine* says:

"We exposed the absurdities of Mr. Leonard Wray, who had the audacity to inform the American public that in England the Strawberry 'has a forced and unnatural existence, more suited to the requirements of a tender exotic than to the hardy Strawberry,' and then he asked 'why is it so pampered, so swathed, so swaddled, and its hardy habit so ignored?' We will not trouble our readers with any further citation from Mr. Wray's revelations, but we feel bound to pronounce against the adoption of American notions by trade cultivators in this country, who appear to be steadily drifting into an injurious rut. In the issue of the magazine for November 18, 1861, we reproduced the trade list of Strawberries published by Messrs. Prince and Co., of New York, for the purpose of showing how needless was the classification of Strawberries as 'staminate,' 'pistillate,' and 'hermaphrodite;' but now we find a few of our own nursery firms adopting the classification, and thereby creating a bewilderment, to the injury of an important branch of horticulture. Suppose, for a moment, we grant that certain varieties produce flowers which are deficient of stamens; what can it matter if, when the time of Strawberries arrives, we find on those

varieties an abundance of fruit? Mr. Scott, of Merriott, meets the case with a good practical suggestion. He says, 'I would advise planting several sorts in proximity,' in order that those that have pollen to spare may fertilize flowers deficient of stamens. The prudent cultivator will not trust to one sort of Strawberry any more than to one sort of Potato, but the less the prudent cultivator troubles himself about 'staminates' and 'pistillates,' the better for his peace of mind and his Strawberry plantation."

NEW OR RARE FRUITS

MOORE'S EARLY GRAPE.—A new, hardy Grape, combining the following desirable qualities, viz.: hardiness, size, beauty, quality, productiveness and earliness, maturing ten days earlier than the Hartford Prolific, and twenty days before the Concord. This is one out of a lot of twenty-five hundred seedlings, and produced its first fruit in the year 1872; it was then exhibited, and has been shown at the exhibitions of the Massachusetts Horticultural Society, and tested by the fruit committee every year since. September 7th, 1872, 1st prize; 1873, Annual Exhibition, 1st prize for any variety not named in the schedule; Sept. 5th, 1874, 1st prize for early Grapes; 1874, Annual Exhibition, 1st prize for any variety not named in the schedule; 1875, Sept. 4th, 1st prize for early Grapes; Sept. 11th, 1st prize for early Grapes; Annual Exhibition, 1st prize for any variety not named in the schedule; 1876, Sept. 2d, 1st prize for early Grapes; Sept. 9th, 1st prize for early Grapes; Annual Exhibition, 1st prize for any variety not named in the schedule; 1877, August 25th, first-class certificate of merit; Sept. 1st, 1st prize for early Grapes; Sept. 8th, 1st prize for early Grapes; Annual Exhibition, Sept. 18th, 1st prize for any variety not named in the schedule. It has also received first premiums from various other societies, and has always taken the first prizes over all other varieties shown in competition. A prize of \$60 for the best new seedling, after a satisfactory trial, was awarded in Dec., 1877, to John B. Moore, for the new seedling *Moore's Early*, by the Massachusetts Horticultural Society. Description of the fruit: bunch large, berry round, large (as large as the Wilder or Rogers No. 4), color black, with a heavy blue bloom; quality, better than the Concord; vine exceedingly hardy; has

never been covered in winter, and has been exposed to a temperature of more than twenty degrees below zero, without injury, and it has been entirely exempt from mildew or disease. Its earliness makes it desirable for an early crop, and more particularly adapts it to New England and the northern portion of the United States.

IDESIA POLYCARPA AS A FRUIT.—The *Gardeners' Chronicle*, says: *Idesia polycarpa* fruited abundantly in several parts of France last season, as we learn from the *Revue Horticole*. When this tree was first introduced it was stated that it bore an edible fruit, but it has now been proved that its clusters of deep brown berries, although very ornamental, are of a bitter, disagreeable taste, and cannot compete with the most inferior of our cultivated fruits. Nevertheless, this may prove a valuable ornamental shrub or tree for the milder parts of the United Kingdom; but it should be borne in mind that it is diocious.

PRINCE OF WALES PLUM.—Fruit about medium size; skin bright reddish purple, with yellow dots, covered with beautiful bloom; flesh somewhat coarse, yellow in color, sweet and sprightly in flavor. It is one of the best culinary plums, and one of the most profitable for market. The tree is very hardy and a prolific bearer, and the fruit being so beautiful, it sells readily at a high price. September.—*Ellwanger*.

SCRAPS AND QUERIES.

YELLOW IN THE PEACH TREE.—A Michigan correspondent says: "At the Annual Meeting of our Society to be held in Paw Paw, 'The Yellows on the Peach,' will be a leading topic of discussion. It is a very important matter with us. We have watched for information from the East for years, while it has been encroaching upon our Peach belt, and have failed to get much. Only last week I read in the *N. Y. Tribune*, a short article speaking of it as a 'fungoid disease.' This seems very strange to us at this late date; it looks as if the editor had found an old article in a scrap-book a decade ago, and rehashed it for 1878. Our people have been trying everything with no satisfaction in receiving a cure. Digging out by the roots has been the only effectual method. What we want are more scientific facts concerning the disease. Will you

give the latest information at your command on the subject?"

[We do not remember the article in the *New York Tribune*, referred to, but there is nothing more certain than that the yellows in the Peach is a root fungus. This is so easily ascertained by anybody who will take the trouble to look and see for himself with an ordinary pocket lens, or to inquire with his nose, if he has no lens, and no "cold in his head," that we look on all discussion as to the cause of the yellows as time thrown away.—ED. G. M.]

PRICKLY COMFREY.—A Boston subscriber, says: "January, 1877, I bought a Prickly Comfrey root, from which I have propagated quite a lot of plants, which will, if reports prove as represented, give me a good opportunity to test it next spring, by seeing it grow, and feeding it to my cows, and find out if there is really any good in it. As I know of no party that has used it yet, I should like to know if you have any reports of it, from parties that are using Prickly Comfrey for their milch cows. By so doing, you will oblige me very much, as I intend to propagate as many more plants this Winter to plant out next Spring, as I shall have roots and cuttings, as I intend to give it a fair trial next Spring and Summer. I have had more or less of it, and fed it to my cows, which have always eaten it, but had never yet enough to feed a whole week or longer to see the effect of it. I sent you a leaf, some time ago, of a kind another man offers for sale, which you pronounced a humbug. If all kinds are are humbugs, I want to stop propagating; if otherwise, I want to go ahead with them. If you answer through the *GARDENER'S MONTHLY*, please, do not use my name."

[We did not say the Comfrey sent us was "a humbug," but that it was not a Prickly Comfrey, but the common Comfrey, and that any one who sold it for the Prickly Comfrey, was guilty of fraud. As for the merits of the Prickly Comfrey as a forage plant, we know nothing at all about it. We do not know that it is a "humbug," or that it is not. All that we claim credit for in this and similar instances is, that we do not fall in and smother a thing with kisses because some one has a few million roots to sell. We have preferred to wait till the facts should give us something reliable for our readers. We do not want the man who carefully weighed his solitary plant, and

then tells us of his wonderful product of herbage "per acre;" but we want the acre and the cow, and "all that sort of thing." We have looked all over the country for him, and through all our exchanges to find his address, but he has not turned up yet. When it happens, our readers shall know all about him.—ED. G. M.]

NEW RASPBERRIES.—A "reader," Kankakee, Ill., inquires where certain Raspberries, noted in our columns, are to be purchased. We fancy they are not for sale, or notice thereof would appear in our advertising columns.

STANDARD CURRANTS AND GOOSEBERRIES.—R. B. asks, "What has become of the Standard

Currants and Gooseberries, about which, so much was said in the *GARDENER'S MONTHLY*, a year or so ago. I believe they were to be grown on the Missouri Currant. Is it a failure?"

[By no means, but nurserymen have had no spirit to work up new ideas the past few years.—ED. G. M.]

DIVIDING CURRANT BUSHES.—T. O. M., Philadelphia, asks: "Will you please inform me whether the taking up and dividing Currant and Gooseberry bushes will impair their bearing for next season?"

[It will, unless the division can be easily made without disturbing the roots.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

EUROPEAN LARCH.

GLEANINGS BY J. STAUFFER.

Among your "Editorial Notes," in the December number, 1878, "Profits of Forest Culture," you present the results of Mr. Rich'd S. Fay's experiment with the Larch, and high price obtained for railroad sleepers. You say, that, "The Larch is profitable, but it is far less profitable than many other kinds of trees would be." Allow me to enumerate some of the qualities of the Larch, and its uses besides for posts, telegraph poles, and railroad sleepers, gleaned from writers on the subject.

It appears that the quality of Larch timber, does not depend so much upon the maturity of the tree, and the slowness of its growth, as that of the Pine; as a fishing boat, built of Larch, only forty years old, has been found to last three times as long as one of the best Norway Pine. It is not so buoyant, however, nor so elastic; and as it does not dry so completely as Pine, boards of it are more apt to warp. It is, however, much more tough and compact; and what are very valuable properties, it approaches nearly to being proof, not only against water, but

against fire. If the external timbers, and the principal beams of houses, were made of Larch, fires would not only be less frequent, but, they would be far less destructive; for, before Larch beams be even completely charred on the surface, a beam of Pine, or of dry Oak, will be in a blaze beyond the ordinary means of extinguishment. Larch, however, is heavier to transport and elevate, and also much harder to work than Pine; and as these circumstances are all against the profits of the contractor, or builder, (or its scarcity), jointly prevents the more general use of this most safe and durable timber.

"The Venetian houses constructed of it, show no symptoms of decay; and the complete preservation of some of the finest paintings of the great Masters of Italy, is, in some respects, owing to the panels of Larch, on which they are executed. The objects for which Larch timber seems preferable to every other, are chiefly these: gates, palings, posts of all kinds, that are inserted either in the earth, or in the water, wooden buildings, many agricultural implements, cottage furniture, bridges and gangways, carriages for transporting stones, and all hard and rough materials, barrows for builders, and road makers, lighters, fenders, and embanking piles, lock and dock gates for canals and harbors, coal

and lime wagons, vessels for carrying lime, pit-props, and hop poles of the smaller thinnings." This writer continues: "For all these purposes, and many minor ones, Larch would come considerably cheaper than any timber now in use; and would, in the average of them, last at least thrice as long. The saving to the public would thus be immense; and the lands upon which an abundant supply might be raised in every county, are at present, lying idle."

I was not aware that, "The Larch was evidently chosen at a time when it was thought very important that Scotch forestry should be the model for American forestry." It does seem slightly critical on Mr. Fay, and Prof. Sargent, who deserve much praise, as you admit. I simply desire to see no detriment cast in the way of such encouragement to forestry, by lessening the value of the Larch.

The common Ash, *Fraxinus excelsior*, is one of the most valuable trees, which grows on various soils, and of rapid growth. In elasticity, it is far superior to the oak, and it is not so liable to be broken by a cross strain. Nothing is superior for agricultural implements, and for all sorts of poles, ladders, long handles, and other purposes which require strength and elasticity combined with comparative lightness. Maple, in the lathe, is easily turned, eligible for saddle-trees, wooden dishes, founder's patterns, and many other articles, both of furniture and machinery. It is not apt to warp, either with variations of heat or moisture. Our Native and European Lime or Linden, also beautiful for shade as are the Maples, though a soft and weak timber is valuable for many purposes. Thus we might enumerate other trees for forestry, worthy a place; but my object was simply to do justice to the Larch, without detracting from others that may seem "more profitable than the Larch."

[We do not understand Mr. Stauffer to give his views of the value of the Larch from any American knowledge of American grown timber, but that he is still holding up to us the results of Scotch or European forestry as a model for American experience.—ED. G. M.]

EDITORIAL NOTES.

STATE FORESTERS.—Mr. Horace J. Smith, writes as follows in regard to a State Forester, to the Manayunk *Sentinel*, and we understand

that it is likely a bill in accordance therewith will be introduced into the Pennsylvania Legislature, during the present session:

"I supplement my previous articles on 'Forestry,' 'The Value of the Catalpa,' and 'Forest Corporations,' by suggesting the appointment by the State of a Forester. The Act creating the office should require that he be a man of approved attainments and practically well acquainted with Arboriculture, who shall also be familiar with methods of statistical inquiry. He shall collect data as to the annual consumption, importation, and exportation of Timber and other Forest products, the amount of Timber used for fencing, and the value of the labor expended thereon, the probable future supply and demand for Lumber; the means best adapted to the preservation and renewal of Forests; the influence, if any, of Forests upon the climate, and the flow of streams in the Commonwealth. He shall specify particularly or generally, where Forests should be planted for the promotion of the interest of the Commonwealth, indicating the kinds most suitable and profitable; the best methods of collecting and saving seeds; and the propagation of trees.

He shall give attention also to the subject of insects destructive to Forests, the introduction of new trees, and Forest industries valuable to the community, the laws bearing upon Forest products, the unification of the customs of measurement of lumber, Forest instruments, Forest, appraisalment, protection of Forests from depredation, the collection of specimen blocks of the various woods of the State, and preparations illustrating the damage to trees caused by insects, rodents, &c., for the Museum of the State Board of Agriculture. His services in the State as Consulting Expert, or for lectures upon Forestry, shall be at the disposal of any citizen or corporation of the Commonwealth for a period not exceeding—days, on the payment of \$—per day and traveling expenses, under rules prepared by the State Board of Agriculture. He shall report to the State Board of Agriculture annually or oftener if called upon, the work he has done, and on the subjects mentioned above, with such suggestions for the framing of Laws as may seem to him important.

"The passage, or even the introduction of such a law, will call attention to this subject, and ultimately tend to bring about the accomplishment of a work, universally considered by those who

have given attention to the matter, of the utmost importance. Other States will doubtless follow our example, and it is altogether possible that our great Pennsylvania Railroad may take the question up and appoint one or more Foresters of their own, who shall examine all that pertains to the enormous supply needed for their gigantic work."

We heartily approve of such a measure as this. It would be one of the cheapest investments the State or States could make. Our only fear is that the Legislature could not be brought to see the full importance of such an office, and be perhaps inclined to look on a small salary as a full equivalent. Nothing less than \$2,000 a year, or if the forester is to bear his own traveling expenses, and he ought to travel the State extensively, \$3,000 a year should be thought of; and it ought to be higher, and doubtless would be made so in a few years, when the full importance of the work should be seen.

And then again there are difficulties in getting the proper persons into the office. If such a person as Prof. J. T. Rothrock, for instance, who has been brought up to agriculture, and yet has a thorough knowledge of arboriculture and botany, and is a clear writer and admirable teacher, could be induced to take such a position, there would be no mistake about the value of a State Forester.

THE BLUE GUM.—The Eucalyptus in California is pronounced not a success as a street tree, though still in great demand where wood is scarce. It goes up like a rocket well enough, but too soon it comes down "like a stick," under comparatively moderate breezes. It is said that no buildings near which they are grown are safe from the grand smash at any time.

THE LUMBER TRADE IN THE EAST.—From all accounts, the trade in lumber shows no decrease. The *American Cultivator* tells us that "Up to Nov. 1, there were 3,000,000 feet more of lumber surveyed at Bangor than in 1877 to that date, and 5,000,000 feet more than in 1876. As on the first of August the amount surveyed was 7,000,000 feet less than last year, it will be seen that for the three months since, there have been 10,000,000 feet more surveyed than in the corresponding time last year."

THE WHITE PINE.—Among the many trees, spoken of for timber planting, the White Pine is rarely named. And yet it has some points well

worth remembering. Speaking of some eastern experiences, the *American Cultivator* says:

"We have accounts of many White Pine trees that were 250 feet in height and six feet in diameter. One in Lancaster, N. H., measured 264 feet. Eighty years ago several trees growing on rather dry land in Blandford measured, after they were felled, 223 feet. In the Summer of 1841, a mast was made on the Penobscot River, Me., which measured, after being hewn to an octagonal shape, ninety feet in length, thirty-six inches in diameter at the butt, and twenty-eight inches at the top. Many masts have been hewn on that river in former times, from seventy to ninety feet in length. The roots of the White Pine, even in the old trees, of seventy to one hundred feet in height, rarely penetrate more than two or three feet, taper rapidly, and extend twelve or fifteen, not often twenty, feet on every side. In trees of not over twenty-five or thirty feet the roots do not penetrate more than fifteen or eighteen inches."

FELLING TREES.—Mr. Gladstone, the distinguished statesman, as our own Horace Greely was, is fond of the axe. He has been giving a correspondent some leaves from his note-book. He considers Yew the most difficult tree to fell; next come Beech and Ash; Oak, though very hard, fells well; but the easiest of all is Spanish Chestnut.

GROWTH OF TREES IN AMERICA.—The *Gardener's Record* says: "Mention is made of a Weeping Willow fifty feet high, after five years growth in New Jersey soil. Astonishing rate of growth, if true."

We think it is not improbable that there may be a tree in New Jersey that has done this, although it is doing extra well. The growth of trees in this country, as compared with England, is amazing. The writer of this had a dozen posts made from an English Oak, twelve years old. It makes three growths a year here, and annual shoots five feet long are not unusual.

CATALPA BIGNONOIDES SPECIOSA.—Mr. E. G. Teas writes to the *Rural New Yorker*, "Mr. Meehan, of the GARDENER'S MONTHLY, seems to doubt the existence of this distinct species of Catalpa."

It would be interesting if Mr. Teas would give the evidence for this statement. It is remarkable what can be the object of all the misstatements and ultra sensitiveness about this

particular variety of Catalpa; and it leads us more than ever to suspect that there is something beneath it all that does not appear on the surface. The common Catalpa, to our personal knowledge, is entirely hardy up to latitude 43°, which is pretty well north, and longitude west 113°, or one thousand miles inland from the sea coast, which is tolerably well west. The line of its perfect hardiness may probably tend a little southwesterly, after this cutting off, perhaps a portion of Wisconsin and Iowa, in which perhaps the common form will not stand. But because it will not stand out well in this out of the way little corner, it is to be called "the tender Catalpa." If everything in the Union is to be called "tender," that will not stand the Winters of Iowa, we cannot soon revise our lists of hardy things. In the statement that there is a variety of Catalpa which is harder in Iowa than the common form, we have heard no one object, and we do not see why more than this should be urged.

SCRAPS AND QUERIES.

PRICE OF R. R. SLEEPERS.—A correspondent from Boston, says: "You must take a more rosy view of the number of trees that are going to be planted, than I can, if you think the price is going down. Unless time steps in, I expect to see their average all over the country, \$2.00, within twenty-five years. The number used up annually, will soon be ten times as great as at present, both on account of increased mileage, and also, and more especially on account of increased traffic. I have been giving much study to this sleeper question, of late, in behalf of Western R. R. planting, and I think I begin to see daylight ahead."

And another says: "I would call your attention to the fact, that already we have over 85,000 miles of railroad track in the country, which, at the very lowest estimate, consume 34,000,000 sleepers every year, or the growth of something like 60,000 acres. Now how long do you suppose it will be, before the American people will plant annually 60,000 acres for sleepers? If they don't do it, the price will rise, and rise enormously, as you will live to see. But very soon now, either the railroads themselves, or companies of capitalists will go into tree plant-

ing on a large scale; and then we shall have an American forestry, for which so many people are setting out, without the slightest idea of what they want, or what forestry means."

[We are very glad that our remarks have called out these observations. There is nothing likely to be more profitable in the future than timber for railroad supplies, and it is well worth while to do what is done, understandingly. There is nothing truer as a principle in business, that the moment anything is found to be scarce and high priced, there is a rush to supply it that pulls down prices. It takes of course, longer to supply the deficiency in a short timber supply than almost anything else; but still a judicious selection of trees to suit soil and climate, would give our country all the sleepers wanted in ten years' growth. Railroad Companies are already looking forward, in many cases, to their timber supplies; and some of them are planting largely; and this will tend to cut down our friend's annual 60,000 acres. One of the leading Eastern railroad lines, as we are credibly informed, had this matter before it last year, and the appointment of some one to look after the interest talked of, and it only fell through because it appeared that the gentleman they had thought of to work up the matter was not disposed to accept the position for the honor of the thing. But we are quite sure that long before ties bring \$2.00 each, such a thought will take some practical form. And then there is this to be said, that the 60,000 acres annually cut over for ties, are not all cleared. An immense area of this acreage grows up again in timber, and especially is the case along the great Allegheny ridge. In Pennsylvania, nearly one-fourth of its whole area is in timber; and it always will be in timber because the land is too steep and rocky for anything else. To our knowledge there are many tracts of timber land that have already been cut over twice since the settlement of the State, and have now timber fit for the axe.

It has been the writer's good fortune to form some acquaintance with the forests of Virginia, Kentucky, Tennessee, and other States, wherein there are now millions of acres of timber, the greater portion of which will not bring \$5 per acre to-day. Long before ties bring \$2 each would it be to the interest of railroad companies to carry tracks through this wooded region, if for no other purpose then to get from these arboreal mines the rich treasures they offer. And this region will always be in timber

because, as already observed, it will yield nothing else.

We may again remark that there is now at once a fair field for profitable timber planting; but it must be done judiciously, and on sound business principles; and the most unbusiness principle one can adopt is to take up with rose colored views of enormous profits.

But we trust our own views will not prevent a free expression of those of correspondents. There is so little known of American Forestry practically, that the most anxious to learn of any of us know but little, and all light we can get will be very welcome, so that we know it is light and not mere phosphorescent glow.

LARCH TIMBER.—In our remarks on Mr. Sargent's notice of Mr. Fay's plantation in the last number, it was said: "the Larch is profitable, but it is far less profitable than many other kinds of trees would be;" on which a Massachusetts correspondent remarks: "What tree is more profitable to plant on the worn out, exposed hills of Essex county, Mass.?" Of course we can attach no definite meaning to the term "worn out." Cotton lands become "worn out" in the South; after a five years crop, it will yield profitable Cotton no more. It is left to grow up to brambles and weeds. But such weeds, and such brambles! No one would think that the soil was worn out for them. So with the "worn out" hills of Massachusetts. The land was probably worn out for agricultural crops, but this should

not mean worn out for trees. The land may be just the thing for trees; but exactly what trees could only be told by an expert after an actual examination of the location and the land.

But the remark about the Larch was induced by a general feeling among those who have been watching American grown Larch, that its durability in this climate is not near what it has been supposed to be in times past in Europe; and we say "times past" because at the present time, if we read reports correctly, the timber from the Scotch plantations in a large number of cases has not proved to have the durability that was expected of it. This is generally ascribed, especially in our country, to a disease of the leaves. It is extremely rare to find Larch trees that have not the upper half of the leaf brown before midsummer, probably from the attack of a minute fungoid parasite, and it is well known that any trouble of this kind in any tree impairs the quality of the timber. If we have not estimated American-grown Larch correctly, of course we shall only be too glad to be corrected, for the timber interest is likely to be too important to trust to any thing but well ascertained facts. And then we thought there might be other things which might have brought in an earlier profit than Larch. But this depends so much on soil, location, and peculiarities of markets, that nothing more is claimed for this suggestion than to lead planters to look at what may be, before planting.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS

POTATO GROWTH EXTRA.

BY J. STAUFFER, LANCASTER, PA.

In looking over my collection of drawings of such objects of interest as have come to my notice from time to time, while investigating vegetable physiology, I have concluded to copy some relating to the growth of the Potato. I herewith send you five illustrations to begin with, which may interest some of your readers should the drawing be worthy or fitted for an electrotype of a reduced size, and the subject matter suitable for your valuable MONTHLY

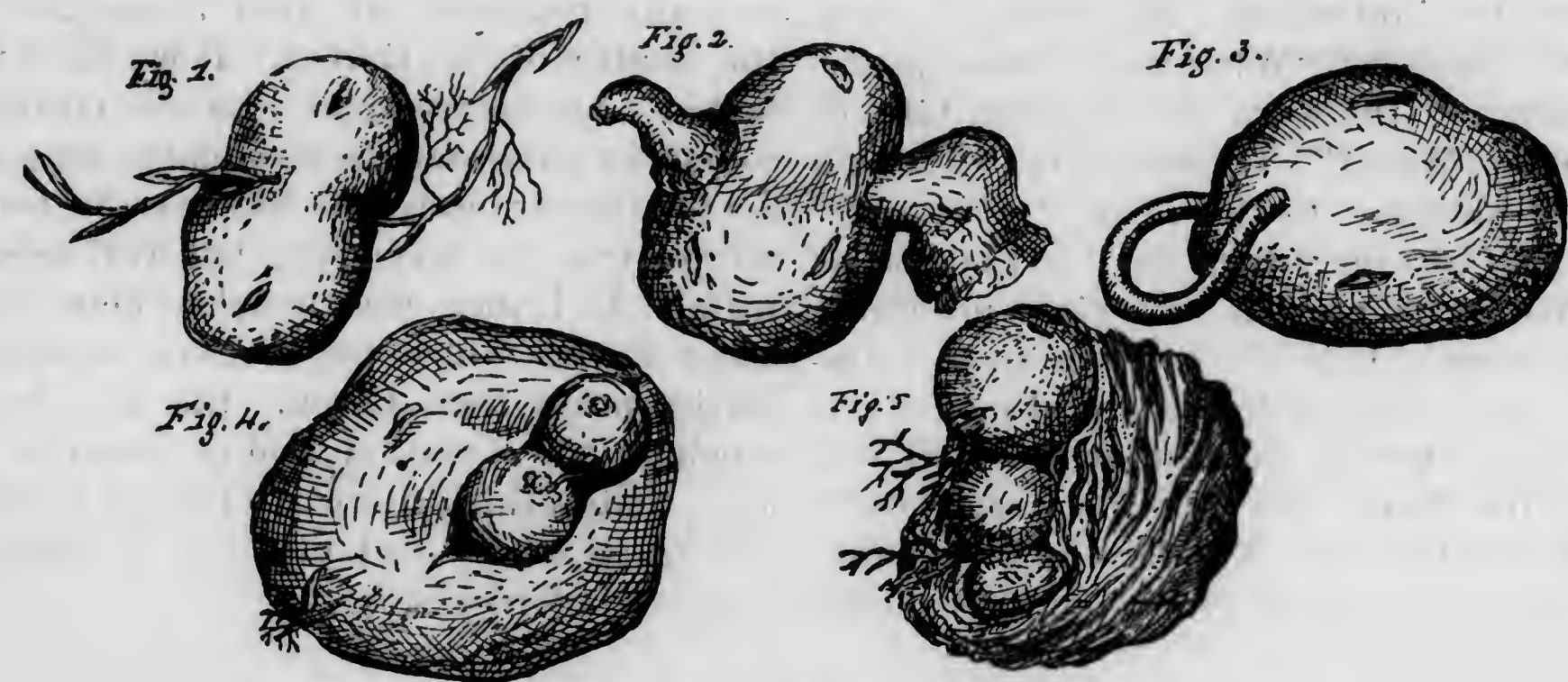
if not, let it go into your waste basket among other trash.

Fig. 1, is one of several brought to my notice where the stoloniferous or underground stems of a species of grass (*Muhlenbergia*) was found embedded in a tuber, by Mrs. P. E. Gibbons, October 29, 1870. Fig. 2, showing the tuber of an Artichoke, *Helianthus tuberosus* L., was embedded in another from J. S. Witmer, of Paradise, Lancaster Co., Pa., February 22, 1873. Fig. 3, a twisted iron-link of a chain partially embedded, from H. L. Eckert, Lancaster, March 27, 1875. These three productions show that the cellular action of growth in the Potato surrounds the object with which it comes in contact. Figs. 4 and 5, present

a different phase of an internal bud or eye, giving rise to new tubers. Fig. 4, was a fine Early Rose Potato, externally smooth, showing two young tubers growing within the parent, from J. Hartman Hershey, among other potatoes exhibited. Fig. 5, a Mercer Potato, greatly wrinkled and withered externally, showing three young tubers and roots issuing from the interior of the old tuber. This or these freaks may be common and perhaps by no means strange to most of your readers; nevertheless, I find no mention or explanation of the phenomena, if such it may be called. Mr. Geo. O. Hensel, also brought me the bulb of a Tulip, which embedded a rhizoma of a species of grass. The structure of the tuber and bulb being in some respects different, yet no doubt the same law governs both cases. We frequently notice the late or prostrate potato vines beset with young tubers mixed with fresh foliage.

cellulose and starch granules. I shall make no comment upon the foregoing, only that the tuber contains within its own substance the elements required to form the organs which are intended to take up food from the air and soil; in the foregoing case however, no soil is present, which makes it more marvellous. It is not my object to enter upon a learned disquisition on cellular tissues, which assume a great variety of forms, varying with the circumstances in which it is placed.

The parenchymous tissue is in general the depository of all the materials which in vegetables administer to the sustenance of man. It is here we find deposited the material that forms our bread, from whatever grain or source derived, or may be manufactured. It is the cellular tissue filled with an amylaceous substance that composes the edible part of the roots that are brought



POTATO GROWTH EXTRA.

In Blyth's copy of "Liebig's Natural Laws of Husbandry," I find it stated that a potato, which lay wrapt up in thick paper, in a box, in the chemical laboratory at Giessen, in a place absolutely dark, dry and warm, where the atmosphere was seldom changed, was found to have produced from each bud, a simple white shoot many feet long, showing no traces of leaves, but covered with hundreds of minute potatoes, which exhibited the same internal structure as tubers grown in a field; the cells consisted of cellulose, and were filled with minute starch granules. It is certain that the starch of the mother tuber, to have moved away from its position, must have become soluble; but it is equally clear, that in the development of the shoots, a cause was operative within them, which, in the absence of all outward causes whereon growth depends, reconverted the dissolved constituents of the mother tuber into

to our tables. The mealiness of potatoes, as we call it, is but the swollen starch grains which compose this important vegetable.

We will now consider the multiplication of cells of young tubers coming in contact with a fixed root or object in the soil; this cell formation will proceed in the direction of the least resistance, the plastic condition by a kind of involution of the mother cell and extension laterally, the cells will continue to form, as in the ordinary process of development, until the object is encompassed (if not too large) and embedded among the tissues. This simple natural process accounts for the three cases, Figs. 1, 2, and 3. We meet with numerous interruptions of a uniform development in the roots of plants and trees flattened or turned aside by rocks or other obstructions. I mention this, because from the known force of plants under germination exerting a great power, it was sup-

posed that in the case of grass roots, they had penetrated or actually grown into the potato, and such was the opinion of not a few when the first specimen was discussed; but the finding of the iron-link subsequently embedded in a tuber, demanded some other explanation.

I can find no account of the growth of young Potatoes within the mother tuber, such as Figs. 4 and 5, yet it can not be a rare occurrence. Having met with other cases of the kind, I fancy it may be too common to give it public notice, or how is it? That the eye is the germ, and that it may find a stimulus from within to start it internally as well as to throw out a fiber or tube with bulb-lets upon it externally? This internal starting would be fed and augmented, causing the young tubers to enlarge and burst the walls of the parent, and result in the formation shown.

It is well to notice these deviations from the normal growth, since hints may be imparted to some wide-awake genius, who may get at a truth that might be of service. Should any of your readers have comments to make, I shall be happy to hear from them.

EDITORIAL NOTES.

CLIMATE OF IOWA.—Iowa must have a terrible climate. Prof. Budd says it will not do in that State to work the Cherry on Mazzard or Mahaleb stocks, which are too tender to survive without being deeply covered.

RICHARDSONIA SCABRA, A NEW WEED IN THE SOUTH.—The *Florida Dispatch* has the following about the *Richardsonia scabra*:

"Originally from the West Indies and Central America. Introduced into South Alabama several years ago, somehow, and now rapidly spreading. It is not a Clover, nor any affinity therewith, but belongs to the Coffee family;

PROF. A. W. CHAPMAN."

"The above is a description of a plant extensively used for feed, and eagerly devoured by stock in South Alabama and Georgia. It is equally so to Indian clover or beggar weed; continues green until killed by cold weather; can be cut and matured at any time; does not drop its leaves as readily as the Indian clover. This is sometimes called Spanish clover, probably from the supposition that it was introduced by the Spanish vessels trading with this country. It was first introduced into Pensacola, in 1860."

BOTANY AT DAYTON, OHIO.—Through the influence of some members of the Dayton Literary Union, there has been organized, in connection with that Union, a botanical section, and quite a revival on the subject of botany has followed in that community.

INSECTIVOROUS PLANTS.—An interesting paper on Mr. Henderson's article, has unfortunately been crowded to our next.

CATALPA BIGNONOIDES SPECIOSA.—This variety was first described and named by Dr. John A. Warder, in the *Western Horticultural Review*, for 1853.

SCRAPS AND QUERIES.

ANDROMEDA ARBOREA.—A Louisville, Ky., correspondent, says: "The 'Chromo' in the December number, is very handsome, although the leaves in my own grounds where the *Andromeda arborea* has been in cultivation nearly eighteen years, do not retain the mottled color long; they change rapidly to their fiery crimson tint and retain it until they drop off. It is a very desirable little tree, but I think less easily domesticated than some others."

PRINOS VERTICILLATA.—A Halifax, Nova Scotia, correspondent writes: "Enclosed please find a branch of a small Evergreen, found some hundred mile South from here, and which puzzles our people here. I have placed it among the *Vacciniums*, but have thought it may be *Andromeda*, would you please note it and answer as to the name, in the *GARDENER'S MONTHLY*."

[It is one of the *Hollies*, *Prinos* or *Ilex verticillata*; a very pretty dwarf Evergreen, and well worth cultivating.—ED. G. M.]

DO TREE TRUNKS ELONGATE?—M. B., Detroit, Michigan, writes: "Recently, in a circle of friends, the question came up as to whether tree trunks elongate. My friend asserted that on a Silver Maple tree near his house, he had occasion to measure from a branch proceeding from the trunk, to the ground, some years ago, and it was exactly seven feet; now that branch at its junction with the trunk, is seven feet, four inches. I contend that it is impossible, and that there must certainly be something wrong with the figures. We have agreed to submit the case to you."

[Your friend is in all probability, quite correct in his figures. Branches from the trunk are often several inches higher from the ground at their junction with the trunk on old trees, than they were when the trees were small;

but this has nothing to do with the question, do tree trunks elongate? From the manner in which wood is known to be made, it is impossible for a branch formed one year, to elongate any time after.—Ed. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

ASCENT OF PIKE'S PEAK.

BY ISAAC C. MARTINDALE.

(Concluded from page 377. December.)

When by our comfortable firesides at home, in coming winter time we read, in the morning print the weather record of the preceding day and night, let us remember, some at least, have not the comforts that are ours to enjoy, but nevertheless, by whose diligence and labor we receive the advantages these reports furnish the world.

An hour's comfortable rest, the enjoyment of the lunch with which we are supplied. And still the storm rages without. Where are our companions, the ladies, where are they? I venture the hope that they have turned back, seeing the storm ahead, surely an hour should have brought them here had they followed on. Just at this moment I hear Meehan's voice, and rush to the door to learn if all are safe. Sallie! where is she? and Tom! is he well? how fare you all, who are yet behind? I put the questions rapidly, without waiting for replies, and assist them as best I can to a place of warmth and shelter. Five of the fourteen have given out by the way, and turned their faces down the steep; one of the pedestrians only, reached the top. The ascent, by my watch, required five hours. An hour and a half of rest and I am ready to descend, as I care not to be overtaken by night in a narrow mountain pass. The storm by this time has ceased and the clouds passing rapidly away let the sunlight through. I walk to the outer edge of the rocky summit, and there behold such a glorious sight of mighty vastness, as seldom the opportunity is afforded. To the right the chain of mountains sweep away beyond the Spanish peaks, to Sangre de Cristo, till

Sierra Blanca, with its whitened top the highest of them all, 15,000 feet above the sea, cuts off the view; to the left stands boldly up Mt. Rosalie, Torrey's Peak and Gray's, capped with eternal snow, the heights of the Sierra Range with Long's Peak, and Mt. Lincoln in the far distance; behind a cluster of mountain summits seemingly so numberless that I wonder names enough are found for all. Before me stretch the vast plains with mottled covering of light and shade from intervening clouds, below, far below, for from this airy height I can look down as I never looked before; I hear the rumbling thunder and see the lightning's flash of the storm which has passed beyond us on its journey eastward. Not long have I to survey this scene; this grandeur I never may again perhaps behold, but mind and memory, twin sisters that they are, will call it up when far away, as now in full realization comes before me the impressions made when I stood on the Righi Mt., by Lake Luzerne and saw an expanse leagues in extent, of water and of land.

Some of our party have gone, the rest are ready, and I bid good bye to the observer, thanking him for his attention, mount my waiting steed and seek the trail again. The snow and hail have accumulated to the depth of four to six inches, and collect on the horses feet, rendering the descent quite as dangerous as the ascent, and requiring the exercise of great caution and care that the loose stones in the way may not prove pit-falls for us, nor damaging to our animals. I had expected to make a collection of alpine flowers, but find the storm has effectually put a stop thereto, so I must content myself with a few that peep out from underneath some sheltered rock where the snow has not covered them. We go down much more rapidly than we went up, not having to give the horses rest so frequently. Just before we reach the

"timber line," we meet the train of pack mules loaded with wood. These little animals "burros" they are called, are about the size of Shetland ponies, but have not their long manes and tails. I stop a few minutes to talk to the driver, and he tells me they are very sure-footed and better adapted to the purpose for which they are used, than mules or horses would be. A kind of saddle is fastened around them, on which is packed the goods to be carried, and all securely lashed together; the weight he thought, would be about 150 pounds to each animal, and they could carry with ease more than that; the pine wood being dry and light makes quite a bulky load, and a very odd looking affair was the pack train as it moved along; the leader, in fact the whole team seemed to know the way and keep close together. Nothing of importance occurs as we work our way downward, save the breaking of the stirrup of the saddle on which one of the ladies rides; mishaps like this may happen at any time, and being well supplied with rope and twine we have but little delay on this occasion.

Soon Laguna Alta comes in sight, and we reach the Lake House about four o'clock; a cup of coffee is furnished to those who need, at the modest figure of fifty cents; perhaps it is a relish to some; I judge it to have been so to one gentleman, who says he drank the contents of four cups before he felt he had enough. Instead of being leader now I bring up the rear, stopping oft to gather specimens of such plants as are new to me, or that I had not seen during the ascent; the contrast of changing forms, is more apparent, and much more limited than I at first supposed; I have never had the opportunity of observing it in this country before, and it furnishes an experience of deep interest to me, in the study of the geographical distribution of plants which has occupied so much of my attention for many years. The beauty of the scenery, shows more to advantage than it did this morning, having the open canon before us, with the valley beyond, a picture which will never tire the eye, but always charm the sight. The toll house is reached at last, and we soon strike the broad highway again; our horses seem also to realize the nearness of the journey's end, and at the word, start off into a "jolly round trot." The iron spring is in sight, and we catch a glimpse of the houses of Manitou, with our own farthest down the way. Just as the village bell would be striking six, if there was any bell here to strike, but there is not, we, three

abreast, gallop up to the steps of the hotel, and are received with acclamations of joy by our friends, glad to welcome our safe return.

EDITORIAL NOTES.

CURE FOR THE FLORIDA ANT PEST.—C. E.'s valuable article we hope to give in our next.

AMONG THE HEATHEN.—Mr. Geo. Foust, one of the most enthusiastic lovers of new and rare plants, and an excellent florist, left Philadelphia a year or so ago and pitched his tent among the fishermen of Barnegat. It is barely possible these good people may know enough of horticulture to recognize a "Fish" Geranium, or the "Dolphin" flower, but if so, but little more. However, Mr. Foust has still his greenhouses and his nice plants, and there is the mail and the express office, and perhaps he may succeed with his sales, and still please the fishermen.

HENRY T. DARLINGTON.—The death of the editor of the *Bucks County Intelligencer*, of Pennsylvania, is among the recent losses to horticulture, though professionally best known in connection with one of the best conducted country newspapers in the United States. He was a relative of the celebrated statesman and botanist, Dr. Wm. Darlington, of West Chester, and possessed the same admirable qualities which made him generally beloved. Of late years he has taken a great interest in his son's success as a florist and nurseryman, in Doylestown, now, we believe, successfully established.

MR. J. H. KLIPPART.—Our readers have mostly learned ere this of the decease of Dr. Klippart, the Secretary of the Ohio State Board of Agriculture, in which connection he has been best known, though his services both to botany and horticulture deserve a lasting record. An intelligent lady correspondent, who knew him many years, and well, pays the following tribute to his memory, and we are quite sure that the estimate she has of his character and worth, is the sentiment of all who knew this worthy man. She says: "In my opinion, there are few such men as he was. He worked unremittingly; although in delicate health, for some years, he gave himself no rest or recreation; he seemed to feel that one life was too short to accomplish all that was demanded of him. He died of no disease, but literally from overwork. It seemed to me, that it was scarcely possible to ask him a question upon almost any scientific subject, to which

he could not give a clear, concise, satisfactory answer. He had collected a very fine library, which he had studied and knew thoroughly."

It was the privilege of the editor of this magazine to recommend him to the advisers of President Hayes, on his accession to office, as a fitting person for Commissioner of Agriculture, and this, without any knowledge of it on the part of Mr. Klippart. It was understood that too many appointments by the President from his State, might not be well received by the nation; but it shows the high estimate put on Mr. Klippart's abilities.

THOMAS WOOD, SR.—Mr. Wood, recently deceased, at an advanced age, at Burlington, N. J., was in early life a gardener, and had charge of the celebrated Bonaparte's place, near that city, when the king of Italy was an exile in our country. Mr. Wood accumulated considerable property, and through a life extending beyond three-score and ten, retained the esteem and confidence of all who knew him. For many years he was one of the chief leaders in the city councils of Burlington.

DISCUSSIONS ON HORTICULTURAL EDUCATION IN MICHIGAN.—At the June Meeting of the Michigan State Pomological Society, during twelve weeks, Prof. Beal gave daily lectures to students. Many of these were given in the open air, with the trees and plants about them. In his pamphlet Prof. Beal gives details of the subjects treated, and shows how excellent this practical mode of teaching is.

THE CALIFORNIA HORTICULTURIST.—Our esteemed correspondent, Charles H. Shinn, becomes the editor of the *California Horticulturist* from the first of January of this year. Mr. S. is so well acquainted, practically, with the needs of horticulture on the Pacific coast, and is withal, so cultivated and forcible a writer, that we anticipate a valuable coadjutor in progressive horticulture by our friend's accession to the editorial chair.

BULLETIN L'ASSOCIATION DES INSTITUTIONS DE LA ZONE COMMUNALE DE VAL-CONGRAIN POUR L'ENSEIGNEMENT, &C., LA PROPAGANDE AGRICOLES ET HORTICOLES, CAEN, FRANCE.—Edited by M. Victor Chatel. February, 1876. From the editor.

Why should French fruits, French plants and French magazines, have such enormous names? While this question is being answered, we may

observe that this is a neat little volume of about 300 pages, containing brief essays by various contributors on horticultural and agricultural matters relating to French culture, being similar in character to those of our State societies.

The paper of leading interest in this Bulletin, is by M. Chatel, himself. He tells us that, "until the present time, to small fungi has generally been attributed the cause of the greater part of the diseases of vegetation, as well as the marks and stains in the skins of fruits; but contrary to this opinion," he shows us that much more is due to minute insects than fungi.

PENN MONTHLY.—This magazine, devoted to literature, science, art and politics, and issued by the Penn Monthly Association, of Philadelphia, is now entering its tenth year. It is very popular with those who love solid thought on the various aspects of human life.

THE POPULAR SCIENCE MONTHLY.—Comes regularly to our table, and is one of the most welcome visitors. It keeps one informed on all that is passing in the progress of science, especially of those branches of science that are applicable to the great questions of the day.

THE BOTANICAL GAZETTE.—This periodical is now entering its fourth volume. It is designed to be a means of inter-communication between botanists, and how well it has accomplished its purpose the numerous contributions from leading botanists in the past volume show. Our text books tell us how to find out the names of plants, and how plants are to be classified, but in the life histories of plants many chapters have yet to be written. It is wonderful how much there is novel and interesting in most of the plants we see, about which few people know, and it is the mission of just such a serial as this to keep people informed of what is being discovered. It is only a dollar a year, and this is of itself a great point in its favor in "hard times." It is published by John M. Coulter, Hanover, Indiana.

THE AMATEURS' HAND-BOOK OF PRACTICAL INFORMATION FOR THE WORKSHOP AND LABORATORY.—New York Industrial Publication Company. Full of directions for little things in the field, workshop or dwelling house, and well worth the ten cents asked for it.

DIOSPYROS KAKI.—History, description, and colored plates, by J. H. Loomis. A beautiful little book. The Persimmons with their numerous

names and prettily colored plates, look certainly good enough to eat. We believe the successful cultivation of this fruit in California is no longer an experiment.

HOW TO DESTROY INSECTS—on Plants and Flowers, in the Garden and in the House. By Henry T. Williams, New York. Though only 30 cents, this little book is neatly bound in paper cover, and is beautifully printed. It contains many very useful hints about all sorts of insects that trouble human nature, and though by no means a perfect treatise, is very well worth the small sum asked for it.

HOUSE PLANS FOR EVERYBODY.—By S. B. Reed, New York; Orange, Judd & Co. It was well to think of a book like this, and it has been well executed. It is full of plans for residences, costing from \$250 to \$8,000, with all needed information about materials and details. Any one who may ever think of building a new house, or of altering an old, will find this a cheap book

to have in the library. It will also be a valuable book to landscape gardeners.

HOW TO READ—and hints on choosing the best books, by Amelie V. Petit, New York, Published by S. E. Wells & Co. From Claxton, Remsen & Co. A very useful work, especially to those whose purses are limited, and yet wish to make selections in various departments of Literature.

THE DETERIORATION OF THE SOILS OF OHIO. By M. B. Bateham. A prize essay, and well worthy of that honor.

NURSERY OF P. J. BRECKMAN, AUGUSTA, GA.—The *Scientific American*, says that there is a returning prosperity through the South, and that it is evidenced, especially by the annually increasing sales of P. J. Berckmans' nursery at Augusta, Georgia. The correspondent speaks of the avenue of Magnolia grandiflora, at the entrance of the nurseries, as magnificent, and the specimen of Coniferous trees on the grounds, equal in beauty to anything he has seen North.

HORTICULTURAL SOCIETIES.

COMMUNICATIONS.

6th ANNUAL STATE FAIR OF COLORADO.

BY J. L. R., DENVER, COL.

Thinking a few remarks on our fair, held here the last week in September, may be of interest to some of your readers, and wishing to bring to the notice of the outside world, so to speak, some of the merits of our young State, as well as making a meagre attempt to place Colorado on the same platform, in an agricultural point of view, that some of her older and more pretentious sisters occupy, and to show what can be obtained with a little knowledge, industry and labor, I have chosen the above as my theme. On alighting at the grounds we proceeded to the Vegetable Hall, a spacious building, amply provided with accommodations. Our minds are at once aroused by the very fine specimens of vegetables, which I certainly did not expect to find, hearing so much East, as I did,

of the droughts in Colorado. I expected to find the exhibits to correspond. The Cabbage deserved admiration, large solid heads. Potatoes too were of good size, with a clear white skin, without that dark cavity in the centre which we so frequently meet East. Tomatoes were not so large as I have seen, but were well colored and very solid. I was somewhat surprised at the Cauliflowers, which, as I was informed, were grown outside, which I thought was very good, as they measured from ten to fifteen inches across. Onions: they were monstrous! the size of the crown of one's hat, almost. Celery, too, was very good for so early in the season. I noticed some huge specimens of Beets, Parsnips, &c. The display of fruit was rather small, but even so, it was a beginning; when we remember that only a few years ago no fruit at all was grown here. People declared it could not be grown, but observation and study is somewhat outruling that now, as there were some very

good Apples and Grapes. Peaches were small; Plums were pretty good, as were Quinces. Leaving the Vegetable Hall we turn to another building, where a glass structure had been erected for the floral display, which was very creditable to the exhibition, especially for the short time they have been engaged in the business. Mrs. C. V. Witter took off the blue ribbon for the best display of greenhouse and bedding plants, and for best display of cut flowers; and a special premium for the handsomest bouquet, and for a very tastefully arranged table ornament which attracted much attention. Mr. Gallup was awarded first premium for the best display of foliage plants, three handsomest bouquets, and second for the best display of greenhouse plants. One very enterprising fact about the population of Denver is, for instance, that a jewelry firm offers premiums for displays of flowers, &c., a groceryman for vegetables, &c. I am glad to see even this far West, and in so newly settled country, that people take such a lively interest in flowers and plants, though sometimes their plants look depressed and woe-begone, or as if they had been bankrupt a dozen times; but such poor success as that don't discourage their owners or prevent them from purchasing a new stock, and starting afresh with bright prospects. But with all their hopes, they are, with very few exceptions designed in their turn to follow them. To close, I might candidly say, if one may judge from what he sees around him, that Colorado is coming up, and which she will prove ere long, without my inexperienced pen endeavoring to forecast her progress.

EDITORIAL NOTES.

NEW YORK HORTICULTURAL SOCIETY.—The New York Horticultural Society met at their rooms, 55 East Thirty-third street, New York, on Tuesday, December 3. The officers elected for 1879 were: President, Wilson G. Hunt, Esq., Brooklyn, L. I.; Vice-Presidents, Samuel Parsons, William Elliott, Daniel Northup, and F. M. Hexamer; Recording Secretary, James Y. Markland; Corresponding Secretary, Peter Henderson; Treasurer, Isaac H. Young. The committee to decide on the \$25 prize offered by Peter Henderson for the best Essay on Rose-growing in Winter, decided in favor of William Bennett, Flatbush, L. I. The competition was close and well contested.

WESTERN NEW YORK HORTICULTURAL SOCIETY.—The Twenty-fourth Annual Meeting of the Western New York Horticultural Society will convene in Rochester, Wednesday, January 22, 1879, and probably hold three days. As our circular will be issued too late for your January number, will you please call notice to the meeting and greatly oblige,

P. C. REYNOLDS, Secretary.

PENNSYLVANIA FRUIT-GROWERS' SOCIETY. The Twentieth Annual Meeting of the Pennsylvania Fruit-Growers' Society will be held in Reading, Pa., on third Wednesday, January 15, 1879. Prominent horticulturists will be present, and interesting essays and discussions on horticultural subjects may be expected. All interested are respectfully invited to be present.

HORTICULTURAL SOCIETIES NOTICES OF MEETINGS.—It does not seem to be understood by some of our readers, that the immense amount of matter contained in our Magazine must take a few weeks to look over and properly arrange, and that afterwards time has to be taken to print, revise, bind and distribute before the readers get it; yet notices of meetings of societies, which we are always glad to receive, are seldom sent to us in time to be of any use. It would be well for correspondents to remember that all matter for the editor ought to be in his hands at least a month before the date of publication.

THE KENTUCKY HORTICULTURAL SOCIETY. This society will hold its Annual Meeting in Eminence, January 14th, 15th and 16th, 1879. The following programme has been selected: Reports of Officers and Committees, Election of Officers, Revision of Fruit List. Essays: The Curculio; its destruction; the method adopted, and probable cost; by Isaac Fawcett, Edwardsville, Ind. Grape Culture; by Thomas S. Kennedy, Jefferson Co., Ky. The Importance of Horticulture; by Hon. Z. F. Smith, of Eminence, Ky. Window Gardening; by Miss Rosa Goldsmith, Jefferson County, Ky. Birds of Kentucky, such as are friendly or unfriendly to Horticulture. The Strawberry in its Glory, Prof. H. B. Todd, of Eminence Ky. New Varieties of Strawberries; by J. Decker, Fern Creek, Ky. Raspberries; N. Ohmer, Dayton, Ohio. Thinning Fruit; by Jas. Lee, Bullitt County, Ky. The Moral Influence of Floriculture; by I. B. Nall, Louisville, Ky. Farmers' Gardens; by Geo. Thompson, Jefferson County, Ky.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

A gardener writes to know what he shall do with his situation. Three years ago when he engaged he found a place of four acres, mostly lawn, part vegetable garden, and three greenhouses. He was to have one man to assist him, a house to live in free of rent, coals, and such vegetables as might be raised over and above the wants of the proprietor, and fifty dollars a month in cash. After he was there a year he was told they could give him only forty dollars a month, and to this he agreed. Last Fall they told him he must get along without the extra man, and he said he would try. Now they say for the next year they shall give him only thirty dollars a month, and he must do the best he can without anyone to help him. He does not want to throw himself out of work and his family without food, and though no better off than a laboring man without any horticultural knowledge, had he not better stay on so long as they are personally satisfied with him? Of course we can offer no advice in a case like this, but it brings us back to a thought we have often given expression to, that people often make gardens without any thought of the after expense. The owner of the place our correspondent refers to cannot possibly take any pleasure in that place.

To keep in a pleasurable condition, a place such as our correspondent describes requires at least an annual expenditure of \$1,200 to \$1,500 to make it creditable, and no one should think of starting such a place unless he can see clearly that he will have that amount to spend on it without interfering in any way with other affairs. Very much may be done to have a place neat and nice by what are called handy laborers. Men who can mow, dig and plant, and look after an occasional horse, at an expense of three or four hundred a year; can often be found who can make a fair sized place look neat and clean; and if the owner himself has taste, and can mark out clearly what he wants, even creditable gardening can often be accomplished, and the fruits, vegetables and flowers raised between whiles and used in the family will pay for the man's wages. But where anything like garden taste or garden beauty is aimed at, very much garden expense must be expected and provided for. Our experience is that half the gardens where gardeners are kept are considerably too large; they are found to be too expensive. Instead of cutting down half the work, annoying reductions are made, which only aggravate the gardener and take out of him all ambition to excel. He simply "puts in his time," as our correspondent probably will, till something better turns up. And the same holds true of gardens where no

gardener is kept,—where the owner and his family do their own work, with the occasional help of a laborer to do the rougher work. They find before the year is gone that they have marked out too much to do, and the neglect is worse than if nothing had been done. At this season of the year one may profitably contemplate what they propose to do in gardening, but be sure not to plan out more than can be very easily done.

We are glad to repeat what we have before had occasion to refer to with praise, namely, the growing tendency to have pretty flowers in one's gardens, as well as carpets and mosaics of colored leaves. We do not go so far as to condemn this style of gardening completely, as some of our contemporaries do, but it certainly has done much to destroy the chief pleasure of a garden, which is flower culture. In real flower gardening we have new pleasures with every opening bud; in carpet and "mass" gardening we have something to surprise our friends when they visit us, but very little more. There is no objection to a little of it, only do not let it crowd out the pretty flowers.

In the Southern States, where our magazine has many friends, the first of February finds planting time arrived. In these localities it is not so much what trees or shrubs will stand the Winter, but what shall we plant that will endure our hot, dry Summers? In almost all these cases the catalogues of local nurserymen will supply the needed information, except in the cases of new things that may be so far untried. It will pay everyone at this season to get the lists of the best nurseries that are near to them. As a general rule Pittosporums, Japan Privet, Euonymus, Gardenias, Pomegranates, Crape Myrtles, and above all the Magnolia grandiflora, are the favorite evergreens for the central and lower Southern States, while such things as Rhododendrons and coniferæ generally, except those of the Cupressinæ class, are unsuited to a Southern summer climate.

In Northern gardens we do not plant much till March, though the weather may be open. Here much use is now made of the dwarfer kinds of evergreens. Since the introduction of so many golden forms, all of which have proved more hardy than the silver tints, they are grown in masses, and make excellent features. The common evergreen Ivy, with its numerous varieties, are grown in masses for bordering. When growing up against the walls of our houses, they

are often injured or destroyed in the Winter; but when trained, or left to trail on the ground, dry leaves, with some brush on to keep them from blowing away, make an efficient protection. The new Euonymus radicans variegata, is an excellent thing to match with Ivy grown in this way.

Every one likes to have Hollies and Magnolias, but they have the reputation of being hard to transplant. But if cut in severely when moved they always do well, and are amongst the most successful of transplanted trees. This little hint about pruning at transplanting may be applied to most things. There are very few kinds of trees that are not benefited by the practice, though often trees will get through very well without it.

It is sufficient to dig garden soil only when the garden is warm and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to powder when you tread on it, it is time to dig—not before.

If perennial plants have stood three years in one place, separate the stools, replacing one-third, and give the balance to your neighbor who has none.

COMMUNICATIONS.

HYDRANGEA PANICULATA.

BY MR. CHAS. H. MILLER, CONSULTING LANDSCAPE GARDENER, FAIRMOUNT PARK, PHILA.

Mr. Parsons in his "notes on the October MONTHLY," page 355 December number, says the first plant of Hydrangea paniculata introduced to this country, was received at Flushing from Japan, in 1862. Mr. Parsons then goes on to say he has a plant of it trained six feet high, the flowers of which are pendent from it in graceful curves. I think Mr. Parsons means Hydrangea paniculata grandiflora, as his description is very characteristic of this well known plant. Hydrangea paniculata is very different in habit from H. paniculata grandiflora; its panicle of flowers stands erect, without any disposition to droop and does not need support. The distinction in the foliage is however very slight, it being perhaps a little darker in the paniculata, but the flower standing well above the foliage, like the common lilac, makes it in my opinion much the more desirable plant of the two. Either is very effective when planted among Rhododendrons, where their late blooming qualities are especially

valuable, and the mingling of their large white flowers with the glossy green foliage of the Rhododendron in August and September is a desideratum. But the flowers of H. paniculata grandiflora do not long remain white. The side exposed to the sun soon becomes of a dull pink, or rather of a dirty brown color; the heavy panicle of flowers needs support, and even then the plant is rather ungainly looking. H. paniculata on the contrary needs no support, and the flower retains its white color much longer. It is therefore in my opinion, a much more desirable plant than the former. I know nothing of the introduction of H. paniculata, but in all probability it has been in this country as long as the other, which being more showy at first sight, has somewhat overshadowed it. For this reason its propagation has been neglected, and consequently it is yet scarce.

CULTIVATION OF THE ROSE.

BY ANGUS W. M'INTOSH.

(Read before the Germantown Horticultural Society.)

I am aware that the subject which I have selected for my essay this evening, has been so fully treated of at various times that nothing really new can be added. And yet it is at all times an interesting topic, for not only is the rose a general favorite at the present day, but from the earliest ages it has been in cultivation among the civilized nations of Europe and Asia, and justly esteemed "The Queen of Flowers."

I might here introduce a brief history of the rose, and notice a few of the many beautiful sentiments that have been expressed regarding it; but all this, while doubtless interesting to a certain extent, would not materially aid me in perfecting the design of this essay, which is to assist, if possible the amateur Rosarian, by considering briefly a few of the most essential particulars of rose culture. And as the object before us should always be perfection, it will be necessary in order to attain our object that particular attention be given in the first place to the matter of soil.

Soil.—Although the rose will grow in any ordinary fertile ground, it succeeds best in a deep, rich, creamy soil, rather stiff than otherwise, but free from stagnant moisture. If your ground is a heavy clay it may be sufficiently improved by a dressing of good sharp sand, and leaf mould or burnt clay. On the other hand if the ground should be of a very light and gravelly nature,

give a good dressing of turfy loam and well rotted cow manure.

Planting.—During the latter part of October any necessary transplanting may be attended to, but the planting of young roses should be deferred until Spring. The ground intended for them should be well trenched in the Fall, and when about to plant in the Spring give it a good forking over, working in at the same time a dressing of manure, and as the rose requires to be liberally treated it will be necessary (except in the case of uncommonly rich soils) to manure the ground every year. During the Summer keep the rose beds clean and free from weeds; be careful to remove all decayed flowers, as they only tend to weaken the plant, and frequent stirring of the ground will be necessary to prevent the ground from becoming baked and hard, and also to encourage a vigorous growth of the plants.

Pruning.—A very few words on the subject of pruning will be sufficient at this time. Hybrid perpetuals should have their shoots slightly shortened after the first crop of bloom is over. And in the Spring give them a liberal pruning. Teas, Chinas, Bourbons, etc., also require severe pruning, as they flower from young wood. Climbing Roses require little, the removal of all dead and feeble wood and very slight shortening back of the shoots will be sufficient for them.

Pot Roses.—But at this season of the year the rose is particularly valuable as a pot plant, and certainly no collection of Winter blooming plants can be considered complete without it. Plants intended for this purpose, requires to be grown in pots during the Summer, as roses potted in Fall from the open ground seldom bloom before March or April, even under the most favorable treatment, while pot grown plants will bloom freely all through the Winter. In treating roses as window plants it is simply necessary to avoid keeping them too warm; give a good sunny position, keep the plants clean and free from insects by frequent sprinkling and sponging of the foliage, and give sufficient water at the roots without allowing the plant to stand in water.

Protection through the Winter.—Roses of a tender nature of course require sufficient protection during the Winter, and with many amateurs the practice is to pot them, placing the plants in a warm room and watering liberally, but this is a mistaken kindness for in this state of their growth roses are much better without heat at all. The best plan is to place the plants when potted in a cold frame or pit, plunging the

pots in coal ashes, tan or any other convenient material; give a good watering when potted, and afterwards water only when necessary. Admit air freely whenever the weather is favorable, while at other times supplying all necessary protection in the way of covering, and by this means your roses may be successfully preserved until it is again time to place them in the open ground.

Insects.—The rose is liable to attack from various insect enemies. The rose slug so destructive during the Summer is effectually destroyed by dusting the plants with powdered white Hellebore and lime, or dissolve a tablespoonful of the Hellebore in two gallons of hot water and apply when cold with the syringe. For red spiders keep the foliage well syringed, being careful to wet the under side of the leaf. Mildew may be remedied by giving the plants a good dusting of sulphur, and for that great pest of the window garden, green fly, nothing is better than tobacco smoke or strong tobacco water.

I have thus endeavored very imperfectly to consider my subject. My object, however, will have been fully accomplished if any of you have been benefited by my brief remarks this evening on the Cultivation of the Rose.

BEECH HEDGES.

BY MR. C. H. MILLER, FAIRMOUNT PARK, PHILA.

The European Beech makes an excellent hedge, and is much used for that purpose both in England and on the Continent, where protection from the cold north wind is needed. Mr. Parsons recommends Purple Beech for ornamental hedges, and no one has a keener perception or a fuller appreciation of the beautiful in trees than he. Like all enthusiasts, however, he has his favorites, and recommends grafted plants only for the purpose, the reason given being that seedlings do not come true to color.

In taking a practical view of the matter I certainly prefer the seedling, it being much more thrifty, better furnished with branches near the ground, and retaining its foliage later in the season than the grafted plant—very desirable qualities in a hedge plant. As to the color, a few in a lot of seedlings would possibly come green, but these need not be selected. That good colored varieties do come from seed, we know to be a fact. They do not, perhaps, retain their purple color so late into the autumn as the grafted plant, but that is a slight matter in comparison

to the many advantages they possess. The color of the Purple Beech is only highly appreciated in the spring when its dark purple foliage is in striking contrast to the pale green of that season. It is quite overshadowed in the autumn by the brilliantly colored foliage of other trees.

THE CLIMBING EUONYMUS.

BY WM. KILPATRICK, COLLEGEVILLE, PHILA.

This hardy climber is of very rapid growth, and attaches itself as the common Ivy does, by sending out roots from the new growth of each year. A small plant will cover a large space of rough wall in a very short time. It propagates easily from the young wood. It retains its foliage through the severest Winters. I have made a fair test of its good qualities as an evergreen climber during the past three years.

EDITORIAL NOTES.

A CURIOUS WHITE PINE TREE.—Somewhere in his European wanderings, the exact place now forgotten, the Editor came on a White Pine tree, the leading shoot of which had been taken out when the plant was four or five feet high and the leader always kept out. The result was a spreading bush of remarkable beauty. Nothing was trimmed or touched but these leading shoots. It did not look in the least unnatural, and we thought it a plan worth imitating now and then.

CURIOUS PINE TREE IN JAPAN.—There is at Osaka, a Pine tree which has been prevented from growing upwards, and is but seven feet high, but the lateral branches have spread so that they are three hundred feet in circumference. The chief art in Japanese gardening, is to make trees grow in odd forms.

TRAINING TREES AND SHRUBS.—There is not much beauty in the ordinary clipped or sheared tree or bush, yet very much might be done to make some take on peculiar, graceful forms, or some shape that even an artist would call beautiful. Not to distort nature, but to encourage her towards her best efforts is surely a worthy object of the garden art.

DESTRUCTION OF TREES IN CITIES BY GAS AT THE ROOTS.—They seem to be suffering from the dereliction of gas companies in Eu-

rope, as well as in our country, by the enclosed from the *Gardeners' Record*:

"We read in a Dutch contemporary that the magnificent avenue of lime trees on the Arnhem Velperweg, which forms one of the chief attractions of the neighborhood, is threatened with utter ruin by the deleterious action of gas escaping from the under-ground pipes and poisoning the soil on which it stands. The local authorities are attempting to remedy the evil by digging large holes round the roots of the trees and filling them in with fresh earth, but at the best this can be but a temporary relief, and it is feared that nothing short of the removal of the main pipes from the present position can save this well-known avenue from speedy destruction."

When we consider the great influence for good which trees have on the public health, it may dawn on the intellect of those interested in the sanitary condition of cities, that it is worth while having gas mains made gas-tight.

SCRAPS AND QUERIES.

RHODODENDRON CULTURE.—F. H., New Bedford, Mass., asks: "Should rhododendrons be planted where in the summer, they are shaded a part of the day, or where exposed to the sun all day. Give distance apart for planting."

The essential part of rhododendron culture is to have cool earth to grow in—earth that is never of a high temperature, or that is ever quite dry or very wet. The little hair-like rootlets like cool, moist air about them, but not water; with this, sunshine or shade for the foliage is but a secondary consideration. Some of the best rhododendrons we have seen have been in the full sun; but they soon go back in the full sun, if the soil is apt to bake—that is, get hot or dry.

Usually, in clay soils, the earth has to be prepared especially for rhododendrons, by mixing with it such as may help it to be porous and cool. This is the reason why peaty soil is often employed. The spongy character retains both air and moisture, and keeps cool. But if the soil has these capacities, peat or earth of that character is not essential.

PROTECTING A LEADING SHOOT OF PINE.—B., Cincinnati, Ohio, writes: "I have a Silver

Fir that I value very much, but every year birds alight on the growing shoot and break it off. It is a year or two before it makes a new leader. It is annoying. Is there any way to prevent it?"

[How would it do to tie a light stick—a knitting needle if you like—against the leader, so that it is longer than the shoot? The bird would hardly rest on the needle, and could not on the shoot.—ED. G. M.]

RHODODENDRONS IN MASSACHUSETTS.—A New Bedford, Mass., correspondent would be obliged by a list of rhododendrons "most desirable for a bed in the latitude of Boston."

LAWSON CYPRESS.—B., Cincinnati, O., asks: "Is the Lawson Cypress hardy, and does it grow fast?" It is one of the hardiest in your region, and grows fast. The only objection to it is that in some locations it is likely to get the "disease" which destroys the lower branches in summer time, but then there may be a hundred good trees to one that gets this defect. It is the lot of all evergreens from the Pacific coast to serve us this risk, but the Lawson Cypress is so beautiful it is worth the risk.

AMPELOPSIS VIETCHII.—The common Virginia Creeper is one of the most beautiful and best known of ornamental vines, and its habit of clinging of its own accord to walls and trees renders it particularly useful in ornamental gardening. But it is questionable whether the Japan species *A. Vietchii* is not a rival to it. It will not, of course, replace it, for each will have lovers of its own for some purposes or other, but still without any special comparisons, it is intrinsically beautiful. We are moved to these remarks by a photograph of the dwelling house of Mayor Conover, of Geneva, the walls of which are covered by this vine. It must be a beautiful sight when really seen, for the stereoscopic view alone is particularly attractive.

THE KENTUCKY COFFEE TREE.—In our note on the large one in the grounds of Miss Haines, in Germantown, it was said that the writer had never found any perfect seeds in the seed vessels on the few occasions he had been personally on the grounds; but we are informed that on some occasions, indeed generally, it does perfect them.

GREEN HOUSE AND HOUSE GARDENING.

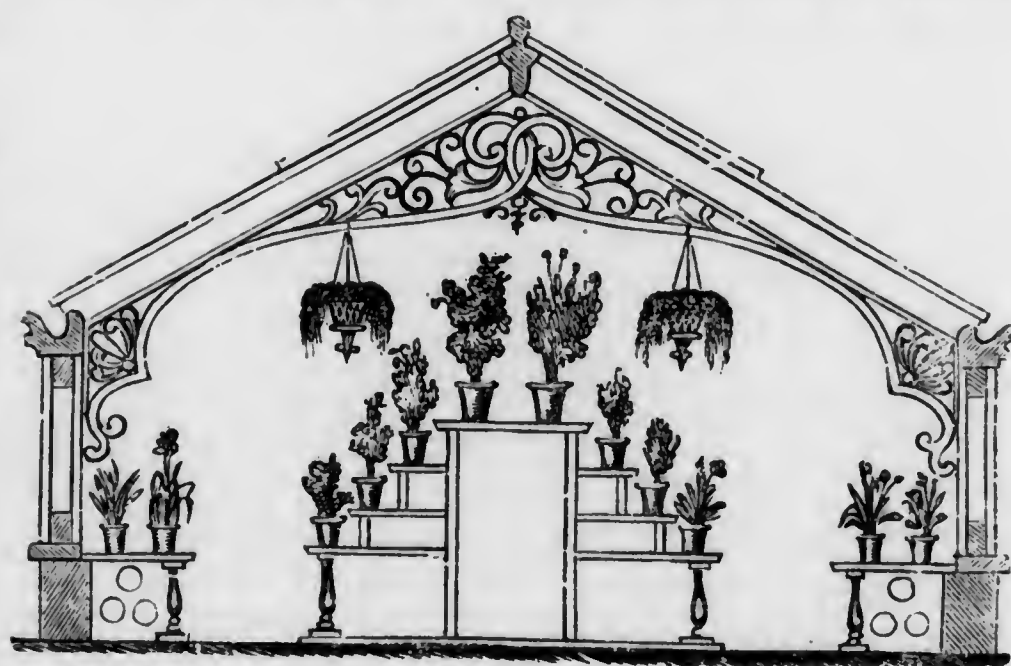
SEASONABLE HINTS.

Out-door gardening will not take on the magnificence that once surrounded it, for many years to come. The great ambition of the rich man of fifty years ago, was to have a town house for winter, and to spend the summer in a nice country place. It was extremely fashionable to have a country seat. Without the country seat, one was "nobody to speak of" in the highest social circles. But with the introduction of the railroad system, the mountain and sea shore were brought within a reasonable distance, and instead of the country seat, the watering place, the tour to Colorado or to Europe is the chief ambition of the average man. There are still a few country places left, but they are not near as numerous in proportion to population as they were even so recently as A. J. Downing's time. The country places that most abound now are simply suburban residences of an acre or two, convenient to railroad, so that the head of the family can attend to daily business in the city, and in which the family can reside the year round. Of course there are exceptions, but this seems likely to be the general rule for American life.

But the love of gardening and of flowers will increase, even in the more confined limits which gardening finds itself subjected to, and it may be a speculation as to what shape the new gardening will take. For our part we believe that during the next ten years there will be wonderful growth in the taste for greenhouses and conservatories, and for having structures of various kinds to hold or to grow flowers attached to dwelling houses. We want to call the attention of our garden architects to this probable tendency in popular taste. At present when an ordinary architect is desired to arrange for a conservatory with the plan of a dwelling house, he knows no more of what is required than that celebrated fellow, the Man in the Moon. The result is that plants roast, freeze, or are killed by gases; and the most unsightly part of the dwelling is the conservatory. But there are

ladies and gentlemen who have more success with these places. Very often these are entirely under their own management, as well as of their own design, and it shows that it only requires a little practical knowledge on the part of designers to enable every one cheaply to enjoy plants as well as other domestic comforts.

And then we want more means in conservatories for making room plants successful. To many the fumes of illuminating gas make a deadly enemy. Yet this can be in a great measure obviated by plant cabinets. At the present time the plants are set in the windows, and they may get the gas or the frost on a cold night, and nothing much can save them. But cabinets can be made to hold the plants, and in this way they are secure from gas; and the case can be put on



wheels, and moved away from the window on very cold nights, after the family has retired.

Irrespective of the interest connected with plant culture, the little greenhouses or conservatories may themselves be made architecturally beautiful and yet be well adapted to the growth of plants. Annexed is a cross section of a very pretty design for such an ornamental conservatory, just suited to be in connection with a dwelling house.

Several ladies, the past year, have sent us memorandums of their successes with room plants, and plant attachments to their dwellings, which were very welcome indeed. We trust they will be continued, as it is in this direction we look in the future for some of our most popular forms of gardening.

COMMUNICATIONS.

HOT WATER HEATING.

F. W. POPPEY, ORANGE, N. J.

In going over some back numbers of this magazine, I find two articles on the above named subject, one in the February number 1876, page 44, and the other April, 1876, page 106, both intended to throw more light on this matter, which has become a very important means in regard to heating houses; dwellings as well as plant houses. Having mainly to deal with it for gardening purposes, two factors present themselves for our consideration. One is the apparatus, and the other by no means the less important of the two is the manner in which we apply the heat produced from it.

Considering the first, we seem to have come to a stand still. There is a "boiler," a queer looking thing, more or less foolishly constructed, but patented withal, and said to be superior to all others, but in fact only different. My objections to all of them to begin with, are the price of acquisition and the subsequent feeding of them. I do not believe that the result is adequate to the outlay, and it is in the economy of hot water heating where I find ample room for a very desirable improvement, and this in my opinion, ought to come from intelligent gardeners, rather than wait for some enterprising plumber to "hit upon it." That some gardeners say they don't want anything better than X's or Y's boiler, does not prove that we need not something better, nor might have it. If however, we continue to treat this subject in the usual empirical and not in a truly scientific manner, we will never reach a more satisfactory result than all our "best boilers in the world," duly patented and persistently advertised have given us up to the present time. Paine says in his "Common Sense:" "The long habit of not considering a thing to be wrong, gives it the superficial appearance of being right." Does it not appear strange that to heat water, apparently as simple a thing as can be, should call for such a numerous variety of more or less complicated apparatuses, every one of them claiming, like sewing machines, to be superior to its rivals? Ought this almost endless diversity not to raise the suspicion of their being about as infallible as the M. D.'s and the D. D.'s? The three "essential points" in a boiler, the first mentioned correspondent enumerates, I cannot indorse as such. For the first, to be capable of burning all

kinds of fuel, I cannot see a good reason nor a possibility or a necessity. The second, to have plenty of heating surface, we have best in the boilers in which we actually boil water to make steam, and this is neither surpassed yet nor even reached in any of our so-called boilers, which, in fact, are no boilers at all, but only heaters, and ought to be called so, as we do call the very same thing when the pipes connected with it are filled with air instead of with water. Permit me here to remark that there are yet too many persons of the opinion that the heat obtained from hot water pipes is moist, whilst that from flues or steam pipes is supposed to be dry. This error, like all errors arising from a want of thinking, might seem pardonable when an Englishman who had been twenty-two years foreman in perhaps, the greatest heating apparatus establishment in the United States, entertained that same opinion until I undeceived him. The fact is, we obtain heat from steam filled pipes perhaps many degrees above 212° F., whilst that from hot water pipes is always considerably less than that. But why your correspondent in the April number would not have his water above 160°, he does not say, nor does there seem to be a good reason for it, except it be that for which the fox didn't want the grapes. I think that, especially in cold nights, many a gardener would have been glad to obtain the balance of 52°, if that patented boiler had produced it.

That that point can so seldom be surpassed, is another proof that the boasted boilers are not such perfections as they are claimed to be by the patentees. There is one defect surely, especially in the conical ones, and that is the heating surface. Though there be enough of it, it is too far from the burning fuel, and the heat is expected to act sideways, which it only does to a very small extent by mere absorption, its natural tendency being invariably perpendicularly upwards, acting by penetration. To raise the temperature of the water to the desired degree, it is therefore "essential" that the heater should permit more heat to enter the water than it can lose by absorption and radiation. When a heater does not admit of a fire big enough to secure that effect, then it is too small or ill constructed; if it does, but at too great expense, it is certainly not such a perfection as it is claimed to be. Since the heat when liberated in our ordinary boilers, in its upwards course does never strike immediately and directly a horizontal surface, but heats a considerable volume of air,

and most of it will, with the draught, pass through the chimney; and without a draught there is no heat, for the draught supplies oxygen, without which no fuel would burn; and to produce a certain amount of heat, a certain amount of fuel has to be burnt. Has ever any patentee ascertained and informed us of how much heat in his boiler is secured to the water and how much of it escapes through the chimney? According to Lavoissier, Laplace, etc., 2,138 lbs. of coal of the best quality are required to bring a cubic foot of water at a temperature of $32\frac{1}{2}^{\circ}$ F. to the boiling point. If, therefore, one afflicted with a "rouser" of a patented boiler will ascertain the quantity of water he has to "boil," he can, by keeping an account of the coal he uses, pretty well see how his heater uses him in regard to cost. The next item in this matter is the shape, efficiency and cost of the pipes. Your correspondent says, and so do most of the patentees, "put in plenty of pipe," but they don't say how much that is. One who knows how much a big piece of chalk is, may make a pretty correct calculation, but others will have to guess at it. We use our heating apparatus only about half the year, the other half it lies there and nobody thinks of it. During the time it is used it suffers very little if at all, but during the time it stands idle the work of destruction, by way of corrosion, goes on day and night, and its result often becomes visible at a time when we can but ill afford to wait for repairs to be made. Another item is that we have to be prepared for an extreme, though but short, cold spell, and if we do that, by increasing the extent of pipes, we have too much for the ordinary temperature. The four-inch pipe has been pronounced the best size, because the water to be heated presents a proportionate surface for radiation, whilst in a smaller size is too much surface to the water, and in a larger, too much water for the surface. When this is correct, then a pipe forming a section of a cylinder two inches deep, with a bottom eight inches wide, would without increasing either the quantity of water or the surface of the pipe, both receive and yield the heat faster than a four-inch cylinder. This I would consider an advantage, since there is no radiation downward. It is, moreover, questionable whether cast iron is yet the best and cheapest material for both heater and pipes; these often laid by ignorant mechanics without due regard to their office, and several narrow upright cylinders put up as expansion tanks, with an equal want of judgment, and

to finish, a return pipe as long as the flow. That hot water has some decided advantages over any other means of heating cannot be denied, but that we have not yet arrived at a point in the construction of the apparatus, beyond which there is no possible improvement is equally true.

For forcing fruit, flowers and vegetables, also the cultivation of tropical plants, we have to employ artificial heat, not only to obtain the requisite temperature of the atmosphere, but also and more so to warm the soil,—in gardener's language, to give "bottom heat." In getting heat of the atmosphere as high as wanted, most gardeners have succeeded well enough, but they rarely trouble themselves about the cost, except they have to pay for both apparatus and fuel, and but few seem to pay due attention to the application of the heat to their plants. To this important subject the attention of cultivators, professionals and amateurs must be drawn when we expect an advance in our indoor gardening. As none of our present hot water apparatus is serviceable to that end, gardeners have either to rely yet on horse-dung and tanners' bark, or get along as best they can without bottom heat. Here is a field for gardeners to introduce an important improvement, but I fear that, with the poor encouragement they receive at the present time, they will be slow in bringing on a better system of cultivation than we have, if the growing of the commonest cut-flowers and bedding "stuff" by the hundred thousand may be called cultivation at all.

It is a subject of surprise to Europeans, seeing our well-to-do gentlemen deprived of the enjoyment of gardens for the most part of the year, through the rigor of our climate, take so little interest in the cultivation of beautiful and interesting tropical plants. But they seem to forget that where there is a horse there can't be a palm, and if the promotion of gardening is to be left to the women, it will always be a smallish affair of calla lilies, portulaccas, and such little things. With a climate so unfavorable to the cultivation of most Summer flowers, but on the other hand superior to any other for indoor gardening, it is doubly to be regretted that we find not one of our many rich men taking a pride in assuming the lead in gardening, and thus, either alone or by association, setting an example to the coming generation in the enjoyment of wealth, and showing young America that there are yet more things worthy of a gentleman's interest besides horses, stocks, and yachting.

EUCHARIS GRANDIFLORA.

BY WM. JAMISON, MANAYUNK, PHILADELPHIA.

There cannot be too much said in praise of this charming and almost ever-flowering stove plant. It is a plant universally known, and is found in almost every private and commercial establishment. I am sorry to say that it is in most cases existing under extreme difficulties, and it is a great rarity to find a truly fine specimen. The plants as usually seen are from three to six bulbs in a pot; sometimes in the greenhouse, and sometimes in some nook or corner in the stove. Neglected, which in many cases I find it is, how can it be supposed that under such treatment it can thrive?

This truly magnificent plant can be had in flower almost any month in the year, with a little good management and care, and a moderately good stock of plants.

The *Eucharis grandiflora*, commonly known as *Eucharis Amazonica*, is a native of New Grenada, found growing on the banks of the tributaries and rivulets of that gigantic river Amazon, from which it derives its name.

The *Eucharis grandiflora* belongs to the Amaryllidaceæ, and, like most of its family, it requires a season of rest, which every practical gardener thoroughly understands. When I say a season of rest, I do not mean a thorough drying of the plants, although I have seen some specimens treated in this way with results highly favorable. I have succeeded well with my plants by resting them about eight or ten weeks every year, giving them a little water occasionally to keep the bulbs plump. I have also seen some very fine plants that have been kept growing all the time. This system I am not an advocate of, as the plants are very apt to flower when they are not required.

The *Eucharis*, in its growing season, delights in a warm and moist atmosphere, and an abundance of water. When the bulbs have matured their growth, they should be put into a house of say ten to fifteen degrees lower temperature, and here they should be gradually rested. After the resting period is over, they should be brought into heat, commencing at 60° , raising to 65° , and so on, in accordance with the heat required by a stove plant. Under this treatment they can be had in flower almost when desired.

It would pay our florists to set up a structure on purpose for growing and flowering the *Eucharis*, because it can be had in bloom when

flowers are most valuable—at Christmas and the holiday season. A leading nurseryman says the price brought for *Eucharis* flowers is fifty dollars per hundred, wholesale, being twice the price of White Camellias.

The most successful mode of growing them I ever saw, was in a place in the North of England. The little house where they grew was once a cucumber house and was span roofed, and was about thirty feet long and twelve or fourteen feet wide. There was a walk in the middle and a bed on each side, heated with hot water; two pipes ran the length of each bed, and through to another house connected by valves. There were four pipes along the walk, also connected with the other house, and each bed was filled with cocoanut fiber. The *Eucharis* were brought in a few plants at a time, and plunged in the fiber. This treatment, with the gentle bottom heat, and the healthy under moisture seemed to act like magic, and soon repaid the trouble. There were a few very fine specimens produced; one, I particularly remember, had on it at the time over forty flower spikes.

If *Eucharis* are to flower at Christmas, the plants should be potted in May, then put in their house, and keep them growing all the summer months, supplying them with plenty of water, and syringing them three times a day. This treatment should be followed up from May until the end of August or beginning of September, when the temperature, as well as the watering and syringing, should be gradually reduced. During the summer months they require proper shading, the effects of the sun being very injurious to the soft green leaves. At this time it would be highly beneficial to the plants, if they were put out of doors for about two or three weeks, shaded from the direct rays of the sun and also from rains, and placed on pieces of slate or boards to keep the worms from working their way into the pots.

About the first or second week of November, I would bring them into the house and plunge some of the pots in cocoanut fiber. Some should be stood on top of the fiber. Commence watering and syringing, keeping the house humid, at about 60° , gradually rising to about 70° or 75° .

The *Eucharis* thrives best in soil composed of good rough turfy loam, a small quantity of peat, leafmould, and sand, and a moderate quantity of cow manure. It is also most essential to have the pots well drained.

When the *Eucharis* are in flower they should

be placed in a little colder atmosphere, which will make the flowers last much longer.

Mealy bugs and black thrips are the chief insect pests to the Eucharis, and these must be sponged off when they make their appearance.

EDITORIAL NOTES.

CINERARIAS.—There are few things more desirable for early greenhouse and window flowering than the cineraria; it may be well to remind the novice that though they are so impatient of frost that the slightest touch will kill them, they do not like heat. About 45° to 50° is the temperature for them.

MAKING FLOWERS FOR EXHIBITION.—At a recent horticultural exhibition at Liverpool, the *Gardener's Weekly Magazine* tells us:

"At the recent chrysanthemum show there one Roberts presented a lot of flowers that were made up of sheer trickery. He had cut out the centers and inserted flowers to fill them out, thus producing gigantic specimens which the judges, by their awards, marked with approval. A keen eye detected first a want of unity of complexion in the showy flowers, and next in one of them the head of a pin. The murder was out—exposure followed—the exhibitor fled! It was found that of twenty-four flowers, as many as twenty-three were made up, and the favorite mode of procedure with Mr. Roberts consisted in weaving two flowers into one, by operating on the centre of the largest."

DAHLIA IMPERIALIS.—We have several times made note of this comparatively new species, and its probable value in out door gardening. It appears it is also useful in conservatory decoration. A correspondent of the *Garden* says:

"One of the most interesting and beautiful plants in flower at Kew, at the present time, is this truly Imperial Dahlia, some specimens of which are flowering freely in the palm house. It is difficult to intelligibly describe without an artist's aid the chaste beauty of its flowers, so different are they from those of the ordinary garden varieties. The flowers, which are single, are borne in loose terminal clusters, and assume a somewhat nodding position. They measure about 6 in. across, and have many narrow pointed ray florets of a pure white color, tinted with carmine at the base, colors which contrast finely with the bright yellow

low centre. The foliage, too, is handsome, being much larger and more divided than that of the ordinary dahlia. Altogether it is a stately plant, forming specimens from six to eight feet, though perhaps this is a point which deters many from growing it, as it requires the protection of glass in order to flower it, though it may be grown outside until early frosts set in. It is to be regretted that this fine plant produces its flowers so late that they cannot be enjoyed in the open air in our climate. Something, however, might possibly be done in the way of hybridizing it with earlier and dwarfer species, and notably with the beautiful little *D. glabrata*, which, being of very dwarf habit, would probably infuse a dwarfer growth into the *D. imperialis*, while the color of the flowers might not be materially affected by it as those of *glabrata* are almost pure white, varying to deep mauve."

HOW TO MAKE MOSS BASKETS.—Very beautiful baskets for holding flowers may be made of the longer and more feathery kinds of mosses. We have made them often; and never do flowers, whether wild or garden, look more lovely than when clustered within a verdant border of that most delicate and beautiful material, which by proper management may be made to preserve its freshness and brilliancy for many months. We will here give a receipt for their manufacture. A light frame of any shape you like should be made with wire and covered with common paste-board or calico, and the moss, which should first be well picked over and cleansed from any bits of dirt or dead leaves which may be hanging about it, gathered into little tufts, and sewed with coarse needle and thread to the covering, so as to clothe it thickly with a close and compact coating, taking care that the points of the moss are all outwards. A long handle made in the same manner should be attached to the basket, and a tin, or other vessel, filled with either wet sand or water, placed within to hold the flowers. By dipping the whole fabric into water once in three or four days, its verdure and elasticity will be fully preserved, and a block of wood about an inch thick, and stained black or green, if placed under the basket, will prevent all risk of damage to the table from the moisture. To make such baskets, says "Cassell's Popular Educator," affords much pleasant social amusement for children, who will find a constantly renewing pleasure in varying their appearance. One week, snowdrops and crocuses will cluster among the mossy edges: then will come groups of "dancing daf-

fodils" and hazel catkins, which, mixed with ivy leaves, make almost the prettiest dressing that can be found for it. In another week or two anemones, hyacinths and jonquils will crave admittance into the place of honor; and long before the basket is decayed, roses, lillies, jasmine, and even carnations, will have sprung into beauty, and had their day in the favorite moss basket.—*Gardner's Record*.

ple color, which makes a very striking contrast to the pleasing green color of the leaves. We have only at present seen this palm in a young state, having raised it from seed received from Madagascar. It is very distinct, at least in the small state, from any palm in cultivation, and on account of its dwarf and compact habit, and its graceful appearance, will be found to be admirably adapted for dinner-table decoration."



ARECA PURPUREA.

NEW OR RARE PLANTS.

ARECA PURPUREA.—Mr. B. S. Williams, of Upper Holloway, London, thus describes this pretty new palm:

"An elegant neat growing palm; leaves pinnate; the stem and petioles are of a bronzy pur-

JAPAN PRIMROSE.—The newest phase of primrose improvement is the new Japan strain. We had a few years ago a *Primula Japonica*, but these are near relatives of the Chinese Primrose, *Primula sinensis*. By a colored plate in the *Garden*, where varieties of numerous shades are illustrated, it is very difficult to see any great difference between them and the Chinese Primrose.

SWEET VIOLET, THE WHITE CZAR.—This is a new variety of the well-known violet "The Czar" so largely grown for the market on account of the size of its flowers and the length of their stalks, their fragrance and their abundance. To these advantages the new variety adds the merit of having white flowers, which come into market at a season when white flowers are very scarce.

HABRANTHUS.—The *Garden* calls attention to these as among the most beautiful of Spring flowering bulbs. *H. pratensis* especially. They are from Chili.

SCRAPS AND QUERIES.

WALL FLOWER.—F. H., New Bedford, Mass. The plant you send is the common European Wall Flower. It is scarcely hardy in this country, and is therefore neglected; but it is an admirable

plant for window or greenhouse culture, and we are glad that our correspondent has given us the chance to say this good word for it.

SEEDLING CARNATION.—Mr. Wm. A. Bock, North Cambridge, Mass., writes: I send by this mail sample of flowers of a seedling carnation which I have raised. I have tested it now two years and find it to be a very profuse bloomer, and of very dwarf habit. Enclosed please find postal card for reply. I would like to have your opinion as to whether it is really a new pink or an old one reproduced.

[We have never seen a variety like this. It is a pretty rosy pink in color, and deeply fringed around the edges. Every flower shows that the great value of a Winter blooming carnation depends on habit, more than on the individual flower. All we can say from the flower alone is that it promises to be a valuable variety.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

In practical hints suited to the season, it is very hard to say much that is new, or that has not been often gone over before. The greatest gain of the few past years has been in divesting fruit culture of much of that mystery with which it was formerly surrounded. Almost any soil will grow fruit trees tolerably well, and a very little common sense and observation will teach people how to manage them in a tolerable sort of a way. Of course, if the very highest excellence is desired, then extra care in the selection of spots, and extra expense and skill, are necessary. But the trouble has chiefly been that new beginners have been taught by writers who were aiming at the highest excellence, which after all can only be reached by experience; and starting at this wrong end, so many people fail. The fact is very few men who recommend spending from two to five hundred dollars an acre in getting ready a fruit orchard, ever do it themselves.

Wherever grafting is to be done, many proceed at once when they think frost is over. Our experience is that the best time is just as the leaf buds are bursting. The grafts must be cut long before, and buried in the earth to keep them from shrivelling. When the scions are thus preserved grafting may be done to near midsummer. Very strong and long grafts may be used on all trees, if not done too early. Marshall P. Wilder gets strong trees very soon by this plan. If too early done these long shoots would dry up. These remarks are for amateurs who have but a few trees to do; and it is now almost a necessity for every one to have some varieties which are not found to do well in a locality re-grafted with those that will. Nurserymen who have much to do, must begin early; but they use short grafts, with little evaporating surface exposed. For wax to keep out the air from the wound, farmers use common earth, with a piece of rag tied around to keep it from washing away. Others who have more to do, use beeswax, rosin, and lard in about equal proportions, melted, and applied a little warm.

Some years ago we published a plan for making a liquid wax; simply melted rosin poured into a bottle of alcohol.

Grape vines are of course all pruned and tied up. Just as the buds are bursting the steel blue beetle attacks them. Hand-killing is the remedy. Where grape vines are to grow fast, use twiggy stakes or wire trellis for them to cling to. It is as good as manure. Also in planting grapes be sure to have a dry bottom. The best security against wet roots is to raise the soil above the level of the surface. Also the drier the soil the richer it may be without risk of injury. Organic manures *sour* rapidly in wet places, and injure fibres.

Gooseberries and currants should have their weaker shoots thinned out, and a little of those left shortened. It makes the fruit much larger. The foreign varieties mildew badly unless grown where the roots will be moist and cool in Summer, but not wet. All these mountain or high northern races, want a cool Summer soil. With the exception of the Cluster there has not been much improvement on the Houghton's Seedling which is the most popular of the more hardy American class. Of currants the Red and White Dutch and Versailles are we think still the best.

In those favored localities where the frost has melted before the suns of Spring, the gardener will lose no time in getting in his potatoes, beets, carrots, parsnips, peas, spinage, radishes, lettuce, onions, and salisfy. These should be the first crops put in after the season breaks up for good. The earlier they are in, the better. Asparagus, rhubarb, and horse radish beds may now be made. Asparagus roots are generally planted too thickly to produce fine shoots—they starve one another. A bed five feet wide should have three rows, and the plants set about eighteen inches apart. A deep soil is very important, as the succulent stems require every chance they can get for obtaining moisture. About four inches beneath the soil is sufficient to plant them. Rhubarb also requires a deep, rich, and moist soil. Horse radish beds are best made by taking pieces of strong roots, about one inch long, and making a hole about a foot or fifteen inches deep, with a dibble, and dropping the piece to the bottom of the hole; a clean straight root will then rise up through the soil. Crowns or eyes are better than pieces of roots, where they can be had, and a rich clayey soil better than a light sandy one.

About the middle or end of the month, or still later in the North—say the middle of March—

celery and late cabbage may be sown. Here we usually sow the second week in March.

All gardens should have beds of herbs. They are always looked for in the Fall, and nearly always forgotten in Spring. Now is the time to plant thyme, sage, mint, balm, and other perennial herbs, and parsley and other seeds of hardy kinds may be sown. When we say *now*, it is, of course, understood to mean where the frost has evidently broken up for the season. Our readers in less favored climes will not forget it when it does.

COMMUNICATIONS.

REMARKS ON THE PRODUCTION OF GRAPES.

BY F. W. POPPEY.

Judging from the scarcity and inferior quality of grapes found in our markets and growing on so many places, there seems to be yet a want of proper understanding of the matter, which is the more difficult to account for, as it might appear, that enough of advice and instruction had been given by letter, word, and practice for all interested in the production of plenty and good grapes. Seeing so many failures in viniculture, it struck me that, if not the majority, at least a great number of experimentors, are still laboring under some erroneous impressions, one of which is, that graperies must be planted on *dry* land, and that they must have a rich soil and be manured, the more the better. As this is all wrong, I beg to state some facts and make some suggestions, trusting they will not be void of interest to those who would like to produce either a good grape to eat, or a good wine to drink.

To raise good grapes for the table, is comparatively as cheap as it is an easy matter, being entirely under the control of man, very different however from that for the purpose of making wine. The former may be had almost anywhere, while the latter requires *natural* conditions, which man cannot procure or change at will. The vineyards in which the grape for the finest wines, the Riesling, is grown have a westerly exposure, on steep hills, with a river at the foot of them, which sends nightly its vapors up, furnishing heavy dews. The sun warming the soil to the greatest depth possible in the latitude of middle Europe, and the winters being through

the Gulf stream, milder than ours, the region in which grapes may ripen in the open air is extended to the 52d degree, and by way of exception even, as far north as the 60th in Sweden. The ground on which they are planted is nowhere dry, but well drained, either naturally or artificially, and well protected against cold, dry winds. To plant a grape vine or a vineyard on dry land is so contrary to the nature of the vine, that it is hard to understand how so fallacious an idea ever could become so general. As to soil, we find no plant so indifferent as the grape-vine, and in its natural selection it evidently shuns dry land, but chooses the banks of streams often overflowing, and luxuriates in rather shaded positions overhung by trees; the fruit ripening where it is screened from the direct touch of the sun by both the vine and the tree to which it clings. Thus the foliage never suffers from dryness of the air, nor the roots from dryness of the soil, and this circumstance ought to be a hint and guide to vine growers; the more so since they always find on their own vines, the best grapes hidden under the leaves, whilst those that are exposed to the sun invariably are smaller in size of bunch and berry, thick skinned and often sour. It appears, therefore, that to grow the vine on dry soil, fully exposed to the rays of the sun and the current of dry winds is altogether wrong, and if we look for information to Europe, we will find that where the summers are hot and dry, like ours, the vines are allowed to grow to trees, and such varieties selected as are unsuitable for the manufacture of such wines as are preferred by modern and refined lovers of a good glass that gladdens the heart. It is just that same access of heat and dryness of the atmosphere, though not as great as with us, which is the predicament under which the vineyardists in California labor, and which makes their wines so harsh and strong, that nobody ever will like nor conscientiously can recommend them to convalescents. This has, nevertheless, been done by so-called doctors, who knew perhaps as much of wine as they did of the disease their patients were afflicted with.

To insure a good native wine, and we have them, we must secure a juicy, not pulpy variety, whether it recommends itself as a table grape or not; then select a locality where the soil is not dry, but is either naturally or may be artificially drained. Then have the vines pruned or trimmed according to some one of the various good systems, but always kept from crowding. How

to select a favorable situation, is a question not so easily decided. A western slope on the banks of a river as is best in Europe, with us exposes the vines in summer to too fierce a sunshine and the dry winds coming from that direction. An eastern or southeastern exposure will modify these extremes, presenting the benefit accruing from the moisture the eastern winds carry with them; but, in the New England States, this eastern wind often produces a too sudden and considerable lowering in the temperature of the atmosphere, which gives a check to the growth, thereby causing mildew. With respect to the selection of exposure, a uniform rule for America is, therefore, out of the question, and the adoption of the same has to be made according to the local conditions. Since planting trees for the vines to grow on cannot be thought of, but the upper roots near the base of the vines seem to demand some protection, I would suggest mulching, and to have the trellises constructed somewhat different from what they generally are. I would have them at least five to six feet high, one foot from the ground, a fence board or rail well fastened to the posts, another one on the top of them, and wires not more than one foot apart between them. Close under the top rail, a piece four feet long across, standing out two feet each way, firmly braced to the post, and a lath about two inches wide fastened to the ends of this cross-piece, serving as a rest for the end vines to overhang, and thus shade the vine, forming a canopy over four feet wide. This will prevent an excessive evaporation of both vine and soil during the middle of the day, and too great a radiation of the latter during the night, and besides greatly diminish the evil consequence of the dryness, the premature dropping of the leaves and consequent exposition of the bunches to the sun, which always deteriorates the quality of the fruit. If water could be given when the drought lasts too long, during the growing period before ripening commences—soaking the soil well—so much the better. That so many possessing but a few vines in their garden, generally on rickety trellises or arbors, get but poor grapes to eat, if any, will never be remedied, as long as these people will not learn what little there is to know about it, but employ men excellent as "coachmen," "useful," &c., to do the good work. These men may be very handy about a place—milk a cow and beat a carpet—but can never do satisfactory work in a garden, unless directed by intelligent garden-

ers, properly educated in their profession, and who of course, expect to be both paid and treated differently from common laborers and domestics. I live in a section of the country—New Jersey, Essex county—where both soil and climate seem to be especially favorable to the grape vine; for there is hardly a house without its grape arbor or trellis, and thousands of them may be counted in one day's tour; but incredible as it may appear, it is an undeniable and stubborn fact, not one is attended to after it has received its annual clipping by one of the above named class of men in the spring of the year. Not much better is it with regard to other fruit. Is it not an anomaly that, to such a place, with thousands of acres fenced in but lying idle, apples and grapes are brought from fifty miles away, and Concord or Delawares sold at ten cents the pound, and Rhode Island Greenings at two cents apiece? Does that look like progress?

CURE FOR TEXAN ANTS.

BY P. H. O.

In the GARDENER'S MONTHLY for December 1878, C. O. S., Seguin, Texas, complains about the destructiveness of a certain kind of ant which eats his plants, and asks if any correspondent knows a remedy. I suppose it is the same kind of an ant which was formerly the dread of Texas gardeners; here are two recipes for their destruction, the first is preventive. Buy a pound or less Cyanide of Potassium, and where you find the ants carrying the leaves in the ground, open the hole carefully and put a few grains of the above named drug into it. The ants are killed by the fumes of this substance, and after a few days you will find for some distance, the hole choked and filled with dead ants, and it will take some time before they will venture to open a new gang and attack your plants again, and if so, treat them to another dose of Cyanide of Potassium. The second remedy is radical. It consists of a contrivance to blow the fumes of burning sulphur into their dens, which are in Texas, from nine to ten feet below the surface. The fumes are blown into their nests by little machines, similar to those of a fanning mill.

SHELTER IN ORCHARDS.

BY IRA J. BLACKWELL.

I saw an article lately, about planting trees for shelter. I would suggest that, if the parties

would set the trees at regular distances for orchard planting, in any State of the United States, and then let the trees branch low, where hot suns prevail, I would advocate not higher than one foot. I think it is the best and only shelter needed to protect from sun or cold. There is another advantage of low trees in early bearing, and on trees properly trained the fruit will be as fine and high flavored as trees trained high.

EDITORIAL NOTES.

THE COOK APPLE.—California having distinguished herself in seedling pears, has turned to the apple, and the "Cook" is at least one which is likely to maintain its value. It was raised by David Cook, of Sonoma, and is said to be just the thing for long keeping in the California climate.

PEACH AND THE PLUM.—It is said that the practice of grafting the peach on the plum, is coming into increased favor in the South.

PEACH YELLOWS IN CANADA.—The *Canadian Horticulturist* says that the peach yellows has made its appearance in one or two orchards about Grimsby, Canada.

THE SPOTTED CLOVER.—This is the *Medicago maculata*, and is said to be popular in the South for pasturing, as it keeps green during the winter, when the Bermuda grass, *Cynodon Dactylon*, is dormant.

THE PROFITS OF ORANGES.—The *Florida Dispatch* acts on the same principle that we do,—that success in any undertaking can only be permanent when the exact truth is brought out. It is devoted to building up the interests of Florida, but it does not believe that Florida is to be saved by bringing people down there under the impression that to grow the golden orange and to gather in the gold are synonymous terms. While it is true that Florida oranges in New York and Philadelphia, this winter, have been bringing forty to fifty dollars a thousand, for the best oranges, it says that about \$12.50 to \$15.00 per 1,000 at the grove, is a very good price for the best article. But at these prices one can make a very good profit on the orange culture business if they know how. It is the same in the orange business as in every other branch of fruit culture, profits do not so much grow as they are made.

NEW OR RARE FRUITS AND VEGETABLES.

NEW FRUITS FOR 1879.—So far as we have been able to learn there has been little movement towards bringing out any remarkable new fruits this spring. There are quite a number noticed in country papers, in which the country clerk or the village minister with a kind heartedness which does him so much credit, declares that he has known John Smith or Thomas Brown a number of years, and is therefore certain that his seedling must be the wonderful event of the age, and so on; but beyond this there seems to be little to agitate us. The fact is that we have got so nearly what we want, that it is hard to improve on anything. Still there is room yet for a few really excellent things.

KIEFFER'S HYBRID JAPAN PEAR.—This admirable fruit, which attracted such marked attention at the great Centennial Exhibition, we note is being propagated by Mr. Wm. Parry.

THE TELEPHONE PEA.—This new English variety, is said to yield under ordinary garden culture, thirteen large peas to one pod.

ROUND ROOTED CHINESE YAM.—This variety is an improvement on the old sort, as far as shape is concerned, it produces round roots near the surface of the soil, but the yield is very small, and for the present it can only be considered as an amateur plant, which cannot be recommended for general cultivation, until by improvement, more prolific varieties will have been obtained. Vilmorin, Andrieux & Co., of Paris, have introduced it to notice.

SCRAPS AND QUERIES.

PEACHES AT CHRISTMAS.—J. M. A., San

Diego, Cal., writes: "I forward by to-day's mail, one box, (3x3x8 in.) containing three "December" peaches, which were taken from the tree to-day. Have had unusually early frosts at my nursery, or the peaches would have remained on the trees until Christmas. I wish to know what you think of their probable value as a late peach. I think they keep later when grown on a moderately stiff soil. Have fruited to a limited extent for two or three years."

It was a surprise to get peaches at Christmas. They were very large cling stones, not of very high flavor; but wherever late peaches are in request surely ought to be very valuable.

HIGHLAND BEAUTY APPLE.—We have been favored by specimens of this new apple; it is small, about the size and general appearance of the well known Tewksbury Winter Blush. It is one of the "sweet class," and a good apple. We are however in some doubt whether in the very large list of named apples we already possess there is any "vacancy" for this good little candidate. Under all the circumstances we would not recommend its distribution. We note however that the letter says: "it is not as good as we have had them."

JUNE BUDDING PEACH TREES.—W. K. T., Little Rock, Ark., writes: "Would you please give us an article in the next issue of the GARDENER'S MONTHLY, giving the modus operandi of June budding peach trees, time of cutting buds, and everything connected with this manner of budding, and oblige a number of your readers."

[Grafts are cut in the Spring, just as if you intend to do regular Spring grafting. Instead of this the long cuttings or scions are put into the ground, or the cellar, or any other place where they will keep alive, and yet the buds not push into growth. The buds of these last year's shoots are then used to bud in June, and they push out and make quite good trees before Fall.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

ON THE NEW VARIETY OF CATALPA.

BY E. E. BARNEY, DAYTON, OHIO.

I trust you will not deem me intrusive or troublesome, if I again write you a few lines on

Catalpa. The evidence accumulates that there are in several Western States two varieties, well marked and clearly defined. One of these, even in this latitude, freezes down when young, in severe Winters, and freezes out and dies in Princeton, Ill., and further north in Iowa, Kansas and Nebraska. The other variety, called the

hardy, speciosa, or early blooming, never dies from frost in any of these States. Col. J. W. Stevens of Minneapolis, Minn. 45° north latitude, writes that it stands their climate where the thermometer falls to 40° below zero sometimes. While the common or late blooming, makes a very handsome tree occasionally, erect and shapely, and in some groves that I have seen, is tall and straight; but this, I think, is the exception rather than the rule. Of a thousand common Catalpa shade trees in this vicinity, the majority may be termed scraggly. Of a thousand of the early blooming, I do not know one; while all are not perfectly straight, a very large proportion are very handsome trees. In Pennsylvania and South Carolina, persons write me that the common Catalpa is often scraggly.

In Marshall Co., Ill. are several groves, also many single trees of the early blooming variety; every tree is straight erect and shapely. They were planted from the seed in the open prairie twelve to sixteen years ago. I have been under the impression that the samples of durability of Catalpa to which public attention has been called, have all been of the common or late blooming variety.

Last Spring, samples of posts were sent me from Southern Illinois that had been in the ground over forty years. Though it is difficult to determine the varieties from the wood, I was strongly inclined to think the samples sent were of the early blooming or hardy variety. I deemed it so important to determine beyond any question that the durability on and under the ground was a marked characteristic of the early as well as the late blooming, that I arranged with a horticulturist of thirty years' experience, and familiar nearly all time with both varieties, to visit Southern Illinois and other points to make a careful investigation. He writes me that after a full and careful examination of posts forty-seven years in the ground, many of which still have the bark on and are therefore varieties readily ascertained, he is fully satisfied that the early blooming variety is quite as enduring as the late blooming, placed on or in the ground. He sends a piece of a fence post with the bark on perfectly sound, that has been in the ground forty-seven years. He says the garden round which these posts were planted forty-seven years ago has been removed and the posts taken up and re-set, and that the owner, Mr. Murphy, says they are good for the balance of a century. The

bark, after the tree is eight to ten years old, is a sure index of the variety.

Some claim to be able to distinguish them by the size, shape and number of pods. I cannot so distinguish them, as they very widely differ each year. Dr. Jno. A. Warder informed me, last week, of a new method of distinguishing them, that so far as I can judge, is perfect, at least it has proved so in a great number of tests I have made. The pith of the pod of the early blooming or speciosa variety, has on each side of it, running its whole length, a well-defined ridge; the late blooming, or common, has no such ridge on its pith. The seeds of the early are broader than the common, and this width extends out the whole length of the wings; the hair-like appendages at the extremities of the wings resemble fringe. In the late blooming, the wings taper to a point from which a little tuft of hair extends, resembling somewhat a camel's hair pencil brush. The difference in the pith and hairy appendages of the wings is so distinct and clearly marked, and as far as I can judge, so uniform, as to give an easy and sure mode of judging the variety.

I enclose pods of both varieties for your examination, and shall be much obliged for your opinion of the correctness of this mode of determining the variety of Catalpa. The three small pods are of the common variety. The common this year here is very full of small pods. The early has few pods this year; hundreds of trees none at all, due, I think, to heavy rains while in bloom. Three years ago the late blooming had large pods and as long as the early. My impression is, there was then the same marked difference in the hairy appendages. Please compare pods of the common Catalpa with you, with these three; probably yours are larger, and see if there is the same difference in pith and hairy appendages as I have spoken of.

[The differences are as pointed out by Mr. Barney. The seeds of the Eastern form are one inch long and an eighth of an inch wide, and those of the Western form, one inch long and a quarter of an inch wide. But the greatest difference is in the silky appendages at the ends of the seeds. In the Western form these are but half an inch long, and each hair is "combed out straight" on the edge of the seed. In the Eastern form the hair is an inch long, and all drawn out together like a "waxed moustache." Instead of mere varieties, it is likely they may take rank as distinct species.—ED. G. M.]

A CATALPA TREE NEAR PHILADELPHIA.

BY MRS. P. E. S., HARROWGATE, PHILA.

I was reading, yesterday, Mr. Smith's account of the Catalpa tree growing in Fairmount Park, and judging from your remarks following his note, I thought that you might like to hear of another tree of the same kind, doing nicely. We have one on our place planted in line with a row of Elms. The Elms are, some of them, said to be a hundred years old; as for the Catalpa, I do not know what its age is, but judging from surroundings, I would think it the same age as the Elms. I measured it this morning, and find it seven feet in circumference one foot from the ground, and five feet six inches in circumference five feet from the ground. I think the tree is about forty feet high. The tree has been blown one sided by the north-west winds, which have had a good chance at it, but notwithstanding its being so uneven, it is a grand sight when in full bloom. Beside this large tree we have a small one, about eight feet high, which starts from the root in three separate parts, each about nine inches in circumference; this is standing about twenty feet distant from the former.

PRECOCIOUS FOREST TREES.

BY REV. L. J. TEMPLIN, HUTCHINSON, KANSAS.

Some learned man has asserted that the prairies of the West are treeless because the texture of the soil is unsuited to the growth of trees. The experience in tree raising on these prairies seem to prove that neither the texture nor composition of the soil is antagonistic to the growth of forest trees. We consider ourselves as far within the limits of the "Great American Desert," yet we have some examples of tree growth that are encouraging. The A. T. & S. F. R. R. Co. has an experimental forest tree nursery at this place in which the adaptability of various kinds of timber to our climate and soil is tested by actual trial. During the past Summer we were both surprised and gratified to learn that Black Walnut trees from seed planted in 1873, were bearing several specimens of fruit. It seemed to be doing pretty well for this timber to bear nuts at five years from the seed; but now we have a case that even excels that for precocity. At a late meeting of the Reno County Horticultural Society, Mr. C. Bisher, informed us that he had during the past Fall gathered nuts from Black Walnut trees, the seed of which were planted in the Spring of 1875. The trees are about three inches in

diameter and twelve feet high. How is that for growth? and for precocious bearing too! To us denizens of the "desert" it is full of promise in the future.

EDITORIAL NOTES.

DISEASE IN THE NORWAY SPRUCE.—The *Journal of Forestry*, tells us that an "able" paper was read before the Scottish Arboricultural Society, by C. S. France, of Penicnik, but the editor concludes his notice of the paper by remarking that the only thing known about it, is that "the disease has long been known," and that "a knowledge of the cause or predisposing causes, and the best means for its prevention," is still desirable.

MEASURING TREES.—At a recent meeting of the Scottish Arboricultural Society, Mr. Gorrie, made the good point that in "his opinion too much importance was attached to measuring the girths of older remarkable trees, whilst the measurement of young and growing trees, by which more really useful arboricultural knowledge could be obtained, was neglected."

SQUIRRELS AND LARCH TREES.—It is said on what appears to be sufficient authority, that in some parts of Scotland, squirrels do not confine themselves to seeds, but eat bark, and are particularly destructive to the trees in May and June.

THE LARGE PLANE TREE.—For years and years we have had served up to us the statement that on the shores of the Bosphorus, is a Plane tree that is 150 feet in circumference. Absurd as the statement is, like many other forest stories of Europe, it has been told over and over again till no one dared to gainsay it. A correspondent of the *Journal of Forestry*, recently had the chance to measure that tree, and found it only nine feet, at five feet from the ground. But he feels it necessary to apologize to "the truth of history," by meekly suggesting that probably the "tree under which Godfrey de Bouillon rested," might have had that large circumference, but that it has long since died, and this one "may have sprung from its roots."

CHRISTMAS TREES.—The German custom of the Christmas tree, has grown so popular, that in Philadelphia, it has infected all classes, and promises to be a permanent institution. There are over 100,000 houses in Philadelphia, and it is believed that there were very few of them this

year without its Christmas tree. The fact excited unusual attention this year, and brought out numerous articles in the city papers about the "awful destruction of our forests, by the senseless practice, and the necessity of some legislative restrictions in reference thereto," that we were led to look into the matter more closely than usual.

The first lot of trees came in from the hills of Northern Pennsylvania, about the 12th of December, and were almost wholly of the Black Spruce. Between this and the 24th, large quantities came in from Maine, and the Eastern States. These were chiefly of Black Spruce, a few White Spruce and Balsam Fir. From New Jersey were a few scattering lots of Red Cedar, Scrub Pine, and now and then a few Pitch Pine. From old nurseries within fifty or a hundred miles of Philadelphia were "surplus" Norway Spruces, and rather more of this class than we have ever known before. It will be seen from this, that there is little relation between the Christmas tree business and the Forestry question, as the great bulk of the 100,000 trees used are such as are nearly worthless or not in use for timber purposes, and the little children when they grow up to the adult stage, however much they may feel that their childish pleasure contributed to make the "arid waste" to which our country is to come to during the next half century, did little at least to lessen the timber supply.

In regard to the prices which the trees brought, they seemed to run all the way from say fifty cents to a dollar and a half each. Extra large or ultra poor of course going above or below as the case might be. The wholesale prices varied from about \$20 to \$100 per hundred. The last were very large, say ten to twelve feet high, and were mostly Balm of Gilead; about \$25 to \$35 per hundred for an average room tree, were the prevailing prices. This for trees delivered free in Philadelphia.

Boxwood.—For some years past the supply of this important wood has diminished in quantity and risen in price. It is derived from the forests of the Caucasus, Armenia, and the Caspian shores. The wood of best quality comes from the Black Sea forests, and is principally shipped from the port of Poti. The produce of the Caspian forests, known in the trade as "Persian" wood, until last year was also exported through the Black Sea from Taganrog. This found its way after the commencement of the war *via*

the Volga Canal to St. Petersburg. The produce of the Caspian forests is softer and inferior in quality to that of the Black Sea. It is a matter of interest to know whether one result of the war will be to open those Black Sea forests which the Russian Government has hitherto kept rigorously closed. The falling-off of the supply has led meanwhile to various attempts to find substitutes for boxwood for many purposes. Messrs. Joseph Gardner & Sons of Liverpool have introduced with some success Cornel (*Cornus florida*) and Persimmon (*Diospyros virginiana*) for shuttle-making, for which purpose hitherto box has been in great demand.

The diminished supply has also drawn attention to the Himalayas as a source of supply. Dr. Brandis, the Inspector General of forests in India, has corresponded with Messrs. Gardner on the subject. I am informed, however, by Mr. Godfrey Saunders of this firm that "the difficulty of transit from the mountains to the seaboard appears to be the great obstacle, and in addition the possible supply appears to be much smaller than is furnished from existing sources."

Mr. Robson J. Scott has presented to our museums blocks prepared for wood engraving of Hawthorn, which he states "is by far the best wood, after box, that I have had the opportunity of testing."—*Kew Report*.

THE BIG TREES OF CALIFORNIA.—There is much nonsense afloat about the big trees of California, and Prof. Brewer writes to the *New England Journal of Education* to enlighten some people as to the real facts. He says:—

"The first error relates to their height, the second to their age.

If only the truth be told, they still remain the grandest trees on earth, and one of the wonders of the world. Some of the Australian Eucalyptus trees exceed them in the matter of height, yet, take them all in all and as they are, the giant Sequoias are the greater. Your correspondent tells of "The Father of the Forest" being "about four hundred and fifty feet high when in his glory," as if this was a proved fact rather than a vague guess. The fact is that no one knows how high it was, for, when the grove was first discovered by white men, the prostrate tree was already partly rotten and the whole top burned away; and accounts published twenty-four years ago speak of the tree as perhaps over four hundred feet high when living.

The State Geological Survey carefully measured all the higher standing trees in this grove,

in the Mariposa grove, and some of the trees in the other groves, and published the result years ago. In the Calaveras grove there were then twenty-seven trees of two hundred and fifty or more feet, four of which were three hundred or more feet, the highest being three hundred and twenty-five feet. Over three hundred trees were measured in Mariposa grove, the tallest of which was two hundred and seventy-two feet. The only other tree I have seen which rivals "The Father of the Forest" in diameter is in the King's river grove, and was less than three hundred feet high. There is no evidence that "The Father of the Forest" (or any other Sequoia) ever reached three hundred and fifty feet, and what its height actually was can never be known.

Next as to age. The first extended description, published in Europe twenty-five years ago, "estimated" the age at several thousand years, and gave wings to the imagination as to the events in the world's history which the old trees had seen in their life-time. This error has been refuted from year to year, for I know not how long, for every scientific investigation has shown its fallacy; but the first story was so well told, and seemed so marvelous, that it is repeated by the majority of "correspondents" in some form, and I am sorry to say that clergymen and teachers are not the least common offenders. It is so much easier to repeat a startling story than it is to test its accuracy, that it is probable future generations of correspondents in 1978 will continue to tell how large this or that tree was "when Paris carried Helen from the walls of Troy." And so your correspondent speaks of one still standing as "a tree that began its growth long before David reigned in Israel!"

We know the actual age of only one of the larger trees of the Calaveras grove, and that is the tree your correspondent tells us of as having been felled in 1853. That tree was sound to its centre, and we know its age to within a very few years, and it began its growth more than twenty-five hundred years after David died. It is possible that some of the oldest trees of this species may have begun their growth over two thousand years ago, but not at all probable that any reached back to within a thousand years of the time of David."

THE WHITE OAK IN MARYLAND.—According to the *American Farmer*, Gen. L. Giddings, near Annapolis, Md., has a White Oak, within fifty yards of his house, which is twenty-one feet in circumference. It is sound and healthy and

symmetrical in form, and as grand a tree of the oak family as can be seen. There must be many ancient and large specimens of trees yet remaining in the Atlantic States, and it would be interesting to have our readers report any trees on their farms or in their neighborhoods remarkable for their size.

SCRAPS AND QUERIES.

SUMAC FOR TANNING.—B., New Jersey, writes: "Attention has several times been called to this subject in the *GARDENER'S MONTHLY*, but I cannot learn where Sumac can be sold if collected. *Rhus copallina*, which I suppose is the variety used for this purpose, grows here plentifully and if it could always be readily sold, might become a source of profit. I am told by a shoemaker here, that there is always a demand, but that it must be ground, and that Sumac mills are rather expensive. Will you, or some one who is posted, give us information on these points."

[The Sumac used for tanning purposes is the *Rhus glabra*. We know nothing of the use of *R. copallina* in this connection.—ED. G. M.]

THE GREAT GROWTH OF THE WILLOW.—E. S. Carman, editor of *The Rural New Yorker*, writes: "The following note, upon which you comment, was taken from *Rural New Yorker*, of recent date:"

"Growth of Trees in America.—The *Gardener's Record*, says: 'Mention is made of a Weeping Willow fifty feet high, after five years' growth in New Jersey soil. Astonishing rate of growth, if true.'"

"The tree was planted near a neighbor's house, five years ago. It was at that time about ten feet high. It is now about ten feet higher than the house, which consists of three stories over the cellar, which is three feet above ground. I did not measure it except by the house, each story of which is at least ten feet in height. You will see my estimate is not out of the way. It is not a remarkable growth for the Weeping Willow in suitable soil and situation. I mentioned it rather to show rapid than extraordinary growth."

THORNELESS HONEY LOCUST.—A Kansas correspondent says: "Can any of the correspondents of the *GARDENER'S MONTHLY* give any

information through its columns, on the Thorneless Honey Locust? Is it of any value as an ornamental tree? Does it grow from seed or cuttings? And can any nurseryman furnish the young trees?"

[The Thorneless Honey Locust is simply the common Honey Locust, that has not the power of producing thorns. It is in every other respect a Honey Locust, timber and all included. It is only raised from seed.—ED. G. M.]

THE EUCALYPTUS IN CALIFORNIA.—A correspondent writes: The one hundred and fifty six species (or varieties, perhaps), of the Eucalyptus tree, from Australia, has, owing to its many excellent qualities for both timber and medicine, been largely planted in California,

some of which are even now nearly one hundred feet high, and fifteen inches in diameter, although only some twelve years old; proof beyond question of its rapid growth, and if hardy enough, would be a valuable addition to the timber of our Western prairies. The quality of hardiness however has yet to be tested, in this State, it being planted only below the line of frost as a general thing.

AMERICAN GROWN EUROPEAN LARCH.—A Wilmington, Del., correspondent of wide experience amongst timber trees, writes: "My experience with the Larch as to its durability coincides with your views. In a trial a few years ago, I found it hardly more durable than White Pine of the same age."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

HISTORY OF SCIADOPITYS, AND OTHER JAPAN TREES.

BY MR. THOMAS HOGG.

Your correspondent, Prof. C. S. Sargent, in his communication to the *GARDENER'S MONTHLY*, published in the last issue of that journal, takes especial pains to warn the public against "too great expectations," as to the merits of that "much heralded plant" the climbing hydrangea, (*Schizophragma hydrangeoides*), and claiming, by inference, the credit of its prior introduction to his friend Col. Clark, President of the Massachusetts Agricultural Society; also of *Sciadopitys verticillata*, and directly for the "first introduction" of *Cercidiphyllum japonicum*.

Permit me to say that I am far from wishing to derogate from the honor due Col. Clark's efforts in adding to the horticultural wealth of our country, but in justice to myself, I may also be permitted to correct several errors into which his friend, Prof. Sargent has fallen.

As to the horticultural value of these several plants I shall leave it to others to decide, when

they have seen them in a mature state, and confine myself to the matter of historical facts as to the priority of introduction.

In the indefinite expression of "some years ago," Prof. Sargent intimates that he received seed of the *Schizophragma* from Col. Clark. Now, why does he not mention the precise date of their receipt, which he could surely do, and thus set at rest any doubts on the subject. Mr. Samuel Parsons, to whom I sent a large portion of my plants, published the fact of its introduction by myself at the time he received it, and if Prof. Sargent can show that he received it from Col. Clark earlier I should be most happy to relinquish my claims.

In the matter of *Sciadopitys* and the *Cercidiphyllum*, I emphatically deny Prof. Sargent's claim for their introduction to Col. Clark. At this writing I am not sure whether the first named was among the plants which Dr. Hall sent to Messrs Parsons, in 1862, but I am sure it was sent by me to my brother, Mr. James Hogg, prior to 1869, for in that year, on my return home from Japan, he had growing several well established plants which I had previously sent him. Of this Prof. Sargent must have been aware if he had taken the trouble to

recall to his memory what he had seen on his visit to my brother's garden at about that time, and before Col. Clark could possibly have sent him the seed he mentions. *Cercidiphyllum japonicum* was among my earliest introductions, either in 1864 or 1865, and at the time of Prof. Sargent's visit was also growing in my brother's garden, where it is still to be seen, and it seems incredible that so remarkable a plant could have escaped the notice of so enthusiastic an admirer of trees. At about the same time Prof. Asa Gray also saw my collection, and will, I have no doubt, be able to confirm my statement.

THE CLIMBING HYDRANGEA.

BY PETER HENDERSON, JERSEY CITY HEIGHTS, NEW JERSEY.

In your January number Professor C. S. Sargent objects to the Climbing Hydrangea being called a new plant, because Siebold had figured it in his *Flora of Japan* in 1839. Surely a plant may have been so figured and described and yet be "new" when it is actually introduced into another country, and there for the first time have a living existence. In the *Flora of Japan* referred to, Siebold at that time figured and described a number of plants new to Europe and America, such as *Trochodendron aralioides*, *Styrax obassia*, several hydrangeas, &c., and when they were introduced into cultivation twenty-five or thirty years afterwards by Mr. Thomas Hogg and other collectors, they were welcomed as new plants, just as we welcomed the Climbing Hydrangea (which I was under the impression that Mr. Hogg was the first to introduce).

But Mr. Sargent makes even a worse charge against the Climbing Hydrangea than its want of novelty, for he says: "if it is new to gardens it is only because it has never seemed worth introducing into them before." Now the fact that Siebold figured and described it showed that he at least thought it worthy of a place in his work; for the book does not pretend either to describe or illustrate the botany of Japan, only the conspicuous and interesting plants—about a hundred in all. Mr. Sargent says that he distributed a large number of plants, raised from the seeds given him by Col. Clarke, yet I think I run no great risk in doubting, that in all that large number, if Mr. Sargent has yet seen a single plant in a matured condition to bloom, and if he has not, how does he know that it is not worthy

of cultivation here? Against the opinion of Mr. Sargent we have the evidence of Mr. Thomas Hogg, who has made the *Flora of Japan* a special study. In all such matters all who know Mr. Hogg, know that no one is less likely to exaggerate than he; and when I heard him assert, that when in company with Dr. Hall they first saw the Climbing Hydrangea in full bloom, festooning the trees on the Hakone Mountains in Japan they were perfectly bewildered with the novelty and beauty of the plant. I for one never doubted that the *Schizophragma* would, before long, become indispensable to our collections here. Our list of hardy climbing plants is by no means large, and we can ill afford to discard this one without giving it a fair trial. Evidently our brethren of the trade in Europe think the same, for we found that in nearly every European order received last season that the "new" Climbing Hydrangea was wanted, and that too in the face of the very high price we then sold it at.

CARNIVOROUS PLANTS.

BY C. W. SEELYE, ROCHESTER, N. Y.

Mr. Henderson's statement of his experiment with the plants of *Dionaea muscipula* is not fully satisfactory. So far as the operation affected the growth and condition of the plants, the opinion of Mr. H. and his numerous friends is decisive, and there he makes a point; the "feeding" did not increase the size or the apparent vigor of the plants. This conclusion does not correspond to that of the Darwins, father and son, and which was one of the subjects of test by the experiment. According to the quotation of Mr. H., there were two positions of the Darwins which he proposed to test; first, "that the so-called carnivorous plants do make use as food of the insects they catch;" and, secondly, "that the difference in growth and final product were very much in favor of the meat-fed plants."

The second position, as we have seen, was not corroborated by the experiment; but how about the first one? Mr. H. narrates an incident in connection with his friend Mr. Smith, "a thorough believer in the carnivorous plant doctrine," who showed him "beyond question a minute species of shell-snails embedded in almost every one of the closed up leaf-traps of the *Dionæas*. 'There,' says he, 'nature has placed the food—the animal food—directly into the mouths of these insect-eating plants. Can you longer

doubt the correctness of Darwin's theory?" Mr. H. says, "I was staggered but not yet convinced, and resolved to keep a close watch on the shell-snails 'that nature had placed in the mouths of these insect-eating plants.' Very soon they required no magnifying glass to see them; in three weeks they had increased wonderfully in breadth and stature; in three weeks more the biters were bitten, for the snails had eaten the fly-traps almost completely up. Mr. Smith has probably somewhat changed his base on the subject of 'carnivorous plants,' particularly as regards their use of shell-snails as an article of diet." Does Mr. H. intend to convey the idea that the *Dionæa* plants are not carnivorous, or only that shell-snails are not consumed by them? Evidently the impression conveyed is that they are not carnivorous, especially as he speaks of his "prejudices against a theory that seems to reverse the whole order of nature." Why does not Mr. H. give all the facts? He had one hundred plants which were "fed" almost daily for three months with flies and other insects." "In this," he says, "I was assisted by one of my neighbors, a gentleman of leisure, and one who is well versed in many branches of natural science." The conditions for observation in this experiment were so favorable, it seems strange that Mr. H. should not make public more of the results. All that we get is that, in the opinion of his friends and himself, the one hundred plants, to which the flies and other insects were given, were no larger or better looking, after three months of such treatment, than the one hundred plants which were screened so that no insects could visit them. From the remarks of Mr. H. we are in doubt whether the plants did in any sense assimilate or "feed" upon the insects. Now, the question is, did the plants "feed" on the insects? If they did Mr. H. must certainly know it; he can tell us how long it took a plant to consume a fly or other insect, and what was the appearance of the surface of the leaf while assimilation was progressing, if such was the case. If the plants did not "feed" on the insects, what became of the flies and other insects that were placed on the plants "almost daily for three months," by Mr. H. with the assistance of his neighbor? Three months is ninety-one days; each plant was fed "almost daily;" making a liberal allowance for days they were not fed, each plant must have received say from seventy-five to eighty "flies and other insects." Now, if these insects were not assimilated by the plants there must have been quite an accumulation of them upon the leaves at the end of the time. If such were the case why should it have been expected that the plants might have received any benefit from such treatment, and why should Mr. H. be so careful as never to have omitted "an opportunity to ask professional horticulturalists their opinion" on this point? If the insects remained upon and about the plants, unappropriated by them, this ends the whole question—it could not have been supposed that they had received any benefit from the insects. On the other hand, if the plants did "feed" upon the insects, the position of the Darwins on this point is confirmed, and the general drift of the conclusions of Mr. H. are incorrect; again, it would be a fair deduction, that the plants were nourished by the insects even if, as Mr. H. says, "the feeding did not certainly fatten." The fed plants and the non-fed plants did equally well, showing that they were able to procure their substance from the unorganized matter of the soil (sand and sphagnum), according to the usual "order of nature" or from the organized animal matter of "flies and other insects." The supply in either case was sufficient for the maximum demand of the plants; and when a supply was received from the insects a lessened demand was made upon the roots.

It is a subordinate question whether, under any circumstances, these plants will thrive better with animal food than without it. It is to be hoped, as "we are all after the truth in this matter," that Mr. H. will have the kindness to present all the facts in the case and then a proper conclusion may, perhaps, be reached.

ADDITIONAL NOTES OF ANDROMEDA ARBOREA.

BY MR. JAMES TRUITT, CHANUTE, NEOSHO CO., KANSAS.

I was well pleased with your frontispiece in the December number of *GARDENER'S MONTHLY*, the *Andromeda arborea*, and hope it will be appreciated by the readers. It is a tree always admired. It grew in great abundance on my old home farm in Kentucky. I have seen the trees forty feet high without a limb, and then with a top shaped like an umbrella; but they generally branch from the ground, and bloom when quite small, when they have a shrub-like appearance, and are very handsome. When I

was a boy I used to make canes of the young wood, ring streaked and spotted like Jacob's rods that he set up along the gutters and water troughs while tending Laban's cattle. I have frequently seen the young plants growing on old rotten logs, also among the moss on rocks. When I came to Kansas I gathered a few plants from the forest and brought them with me, also some seed, but the latter failed to grow. They were likely gathered before fully ripe, as I was very anxious to secure some seed. I also gathered at different times to make sure of them. The flowers hang for a long time on the trees, which adds to its value as an ornamental tree.

EARLY HISTORY OF THE CATALPA.

The following very interesting note from Hon. Eli K. Price, one of the Commissioners of Fairmount Park, regarding the early history of the catalpa, has been kindly handed for publication: "I have your note requesting information in respect to the catalpa. I have been here since April, 1815, and have known the tree as common since that time, and trees were then grown. Dr. Henry Muhlenburg read a Catalogue of the Trees in Lancaster County before the Am. Phil. Society, 18th February, 1791, including the catalpa, but classed as not native to that county. They naturally would be brought here first, and John or William Bartram could not have failed to bring them from the Southern States before that time. There is one growing before my office window, Walnut above Seventh Street, in the northwest corner of Washington Square, now of the girth of eight feet, at the height of four feet, probably planted in the spring of 1816, as that square was planned for improvement by G. Bridport in 1815, and improved under the direction of George Vaux (Watson's Annals of Philadelphia, page 407). We have in the Fairmount Park a larger catalpa, on the west side of the Schuylkill, above the lower Reading railroad bridge, now surrounded by a dense grove of its seedlings; and catalpas are in various other places in the Park. Dr. Darlington's Flora Cestricea, published in 1837, describes the catalpa as an introduced tree in Chester county, growing at the foot of the North Valley hill, and other places.

"We esteem your hardy catalpa as a valuable acquisition, and have planted five hundred of the trees in the Park, and many of its seeds."

CARNIVOROUS PLANTS.

BY PROF. W. J. BEAL, LANSING, MICH.

In the December number of the GARDENER'S MONTHLY appears a very interesting article from Peter Henderson in regard to some recent experiments made by him on the Venus fly-trap *Dionæa muscipula*. The article starts out with a quotation from some journal as follows: "Mr. Francis Darwin has proved very conclusively the truth of his father, Charles Darwin's position, that the co-called carnivorous plants do make use as food of the plants they catch. A large number of plants were fed on meat, and as many on what they could get from the earth as best they could, and the difference in growth and final product were very much in favor of the meat-fed plants."

Mr. Henderson says, "Resolving to fairly test the correctness of Mr. Darwin's theory, I last season procured a large number of *Dionæa muscipula*." He then speaks of feeding them and states that the plants fed did no better than those not fed with meat, &c. There are one or two points in this to which I wish to call attention. The quotation from the journal on the start by Mr. Henderson, and the remarks which follow, would indicate that he was experimenting on the same species of plants experimented on by Mr. Francis Darwin. Such is not the case. In *Nature*, p. 222, January, 1878, is an article by Francis Darwin, read at a meeting of the Linnean Society. Mention of this article has been all through the press of this country. The plants used were 200 of *Drosera rotundifolia*, Sun Dew, and not those used by Mr. Henderson. This difference in the selection of plants by the two experimentors ought to have been stated by the author or by the editor, if either of them knew the name of the plants used by Mr. Darwin. Let all of us treat our opponents with candor and fairness, if we wish to win.

Now as to Mr. Charles Darwin's theory, we have two sets of experiments on record, one by his son on one genus of plants, another by Henderson on another genus, and no doubt there are others made by other parties. I have thought that the glandular hairs of tomatoes, petunias, and martynias might absorb nourishment from animal substances applied to them. This season I had an assistant raise some plants of the three genera named above. To one lot of each were applied on numerous occasions, beef soup. All plants thus treated were damaged more or less. The soup seemed to injure the

leaves. But I do not consider that I have overthrown Mr. Darwin's theory. The soup may have been too strong, or of the wrong material, or perhaps the glands will not profit by the application of animal matter in any form.

PECULIAR FORMATION OF ROOTS IN A PAPER MULBERRY.

BY REDWOOD CALEHOPPER, WILMINGTON, DEL.

On a street of this town a paper mulberry attracted my attention by reason of an unusual development of roots; that is to say, it was an unusual sight to me, though it may be of common occurrence. The interior of this tree, a medium sized one, was completely filled with decayed wood, much of which had become quite black and was therefore in a suitable condition to receive and support root growth. New wood had covered the edges of the broken side through which the rotten interior was seen, and from this new formation, roots, in one instance an inch or two in thickness, had struck down into the mass of soft decayed matter, the roots being almost equal in quantity to the supporting material. The starting point for many of these roots was three or four feet from the ground, but whether they issued from the entire interior surface of the tree, or only from the new wood at the edges of the opening, I cannot say.

This instanced fact simply shows that under different stimuli different results are produced from the same surface of wood. If the conditions are favorable for the growth of leaf buds such will be produced; if for roots, they will naturally follow.

THE ENGLISH SPARROW.

BY W. C., NEWBURG, N. Y.

Concerning the English sparrow eating fruit I can speak positively. Great numbers of them nest in the neighborhood of my house, winter and summer, seeming to enjoy particularly my garden. I have seen them for years there by the hundred, and never until this fall have I had reason to believe them trespassers upon its fruit. It so happened the very day your last journal came I sat looking over its pages by my library window. I had just noticed "Maryland's" request for information, and raised my eye at the same moment toward the window. There in full view upon the grape trellis opposite were at least one dozen of the sparrows in a vigorous

attack upon a few clusters of Delawares still upon the vines. Caught in the act, they were guilty beyond peradventure! Still, as they had destroyed without doubt through the summer insects without number, and before touching my fruit had waited for me to take my share, I made no objection to them now taking theirs. Strictly speaking they are fruit thieves, but certainly unusually modest ones. I wish it were possible to make their example followed by the rascally oriole.

FOREST FIRES IN WASHINGTON TERRITORY.

BY MRS. FANNY E. BRIGGS, LA CENTER, W. T.

We have had our heated term even here where the atmosphere is supposed to be always cool and moist, but old Sol was not responsible. Of course in clearing timbered land there is much burning to be done, and as the time approached when rain might be expected it seemed as if everybody started fires simultaneously, and the summer having been very dry they spread beyond all expectation. We have had a new experience in connection with these fires, but not one we wish to repeat. With my little daughter, I left a neighbor's house to return home nearly three miles distant. We knew there were great and increasing fires in all directions, but had no thought of danger on my way, of which the first mile lay through open ground, the remainder through heavy green timber hitherto untouched by fire. There were no houses after I left the open ground, no cross roads, and my road was scarcely more than a foot path. Half way home I became aware of a heavy fire advancing from the south. I could hear the steady roar of the flames, and soon could see them at intervals sometimes quite near. I hesitated a little, but did not like to turn back. The fire could not advance very fast through green timber though there was dense underbrush and many fallen logs, some dry at this season; besides, I might soon pass the fire. For a mile I went on, hearing and seeing the fire constantly, but as my way tended to the northeast, not nearer to the road.

Half a mile from home, however, the smoke thickened and the air grew hotter, and I could hear fire advancing from the east. I dared not now turn back, for my strength was giving way, and I was sure the fire had crossed the path at many points. I soon saw that a fire had swept through since the day before, and had retired,

and stumps were still blazing and trees had fallen across the way. All this time my little girl was trotting happily along, unscared, chatting about the bright leaves, and moss, and butter-flies' wings she had found, and I answered cheerfully, though rather briefly, for I would not cloud her little soul with fear if it could be avoided, and to her remonstrances at my speed, I only said "we must get home before there is any danger."

A quarter of a mile from home the road turned north, at the top of a hill, but here the prospect was worse than ever. I could now see the fire coming fiercely from the east through dead instead of green timber. The smoke and heat were suffocating, the air full of flying leaves and ashes, and the very small portion of the road that I could see, strewn with brush, and burning fragments from the dead "stubs" that were blazing around. But my husband was at home, and would come if he could. But what if I could not make him hear above the roar of the flames!

I called at the top of my voice, a peculiar cry, that is our family signal; three times I called before there was any answer, but at last it came, and soon my husband came at his utmost speed, and in a few minutes we were at home and safe. He had supposed that it was known that the fires were becoming dangerous, and had no idea we were on the way. Half an hour after we reached home that last quarter was utterly impassable, and no doubt much of the last mile.

That night we had fire works to celebrate our safe return. On all sides we heard the roar and crackle of the flames, and the fall of great tree trunks near and remote. It was a grand, and even terrible sight, but I could survey it calmly, and enjoy its grandeur, thankfully that it was not the smoke of homes and temples that was ascending, and human life at least was safe. More than seventy tall trunks were burning quite near. Some smouldering sullenly, some blazing at top like a torch; some, often the tallest, flaming from base to summit, and over others again the flames flickering in a way that made them look like hollow tubes full of fire, escaping at many perforations. Green trees and bushes writhed and tossed their arms in the strong draught of the flames like living things seeking to escape, and this the fires seemed determined not to allow, sweeping every way in turn, and scorching every green thing. After this it became rather monotonous. For nearly a week the fires raged unabated. The smoke became so thick that it con-

cealed the fires almost wholly. We could gaze on the sun at noon-day; the moon was a copper instead of a silver orb, and the stars were hidden save in the zenith. Our heads were water, and our eyes fountains of tears.

Well fire is a good servant. This week of fire has done more clearing for many persons than they could have accomplished in a year. But, oh! the blackness and desolation of the prospect about us. No bright Autumn tints for us this year, and the vine maples were hanging forth such beautiful scarlet banners. There are heaps of ashes, and of fallen trees which yet leave scarcely a gap among the many more that remain standing, thrice blackened. The undergrowth is scorched and bleached, the young firs scathed and brown. Well, perhaps there must be chaos at the beginning of every new creation, even of our homes in the wilderness.

EDITORIAL NOTES.

NATURAL HISTORY AND SCIENCE.—This department the reader will find particularly rich in contributions this month, which shows the widespread interest which is taken in intelligent study of nature. We are glad that this so. We neglect no item of progress that is at all likely to interest the newest novice in horticulture, or that may tend to put money in the purse of those who follow horticulture for a livelihood, but even to these there is an additional pleasure in knowing how the flowers blow and the birds sing, and it is gratifying to us to find by so many contributors to this column, that the world is coming to think more so as it grows. Besides, knowledge is power.

INFLUENCE OF THE SCION ON THE STOCK.—In reference to what we have said about "credit" in another column, we will be particular in saying that the following is an "original" editorial paragraph from the New York Tribune:

"One can't most always tell the extent of the influence of scion on stock, or in what direction it operates. Professor Beal gives the results of some experiments made on this interesting point. A pelargonium grafted with a variegated scion became variegated. A tomato grafted with a potato scion set small tubers in the axils of the leaves. A sunflower grafted from an artichoke produced tubers under ground."

We are tolerably familiar with the good work of Prof. Beal, but have not at hand that we know

of any account of experiments of this kind that he ever made. It may be that Prof. Beal said, that he had heard that somebody in some place had made such experiments with such results, and perhaps Prof. Beal may have expressed an opinion that he thought these things may possibly have been performed with such results.

LEAVES AND PETIOLES.—It is well to remember that though we speak of leaf blade, petiole, stems, and so forth as distinct organs, they are primarily the same, as curious freaks of nature as they may be called often teach us. Thus in a very curious species of Croton,—*Croton appendiculatum*, recently sent out by James Vietch,



CROTON APPENDICULATUM.

There is indeed enough known of variegation to warrant our believing that part of the story may be correct, but that tomato and artichoke question we "move to be laid on the table" for the present. But we suspect that the Tribune's "original" paragraph is really one altered from some other "exchange," and that in the alteration full justice has not been done to Prof. Beal.

& Son, of Chelsea, London, portions of the leaf blade return again to leaf stalk, and in many plants half the leaves have this apparently double leaf. Similar lessons can be found in many things if we only look sharp.

URANINE.—The *Scientific American* with its "compliments," and we are glad to be remembered by so good a paper, sends us a preparation

from tar, under the above name, of which the smallest particle dropped into water, will take on many singular forms and colors. It is a pretty amusement, not only for small children, but for children of larger growth.

PRINOS VERTICILLATA.—By a singular slip of the pen, we wrote "*Prinos verticillata*," instead of *P. glaber*. *Prinos glaber*, is the only evergreen of this genus in the Northern States, unless we accept the views of some botanists, that *Prinos* is not distinct from *Ilex*, or the true hollies.

CUPRESSUS McNABIANA.—This was named in 1853 by Mr. Andrew Murray, in honor of Mr. James McNab, the well known curator of the Edinburg Botanic Gardens. It came from Northern California. Mr. McNab died on the 19th of November last, in the 68th. year of his age.

SCRAPS AND QUERIES.

BLUE GRASS.—An esteemed correspondent says: "I would ask what you meant by 'Blue Grass' in the last number? *Poa compressa* is the 'Blue Grass' of all the Eastern country, and merits the name, having a blue color, but the *P. pratensis* is the Blue Grass of the West and is much better for a lawn, though the name 'blue' is a poor one for the brightest green."

[*Poa compressa* is the 'Blue Grass' of botanists. There is no doubt of this, and yet we are nearly sure that if any one send to a seed store in any part of the United States for 'Blue Grass' he will get *Poa pratensis*. We are as sorry as our correspondent that it is so, but so it is.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

EDITORIAL NOTES.

AMERICAN KNOWLEDGE IN EUROPE.—An American correspondent of the *Garden* has been criticising it for its ignorance of American plants, and American things in general. On reading it we feel like saying a good word for the *Garden*, for it really exhibits much less of this weakness than many of its contemporaries. It is indeed, a matter of surprise that such an immense amount of error about America should find a place in European literature. We could fill a whole page every month with an exhibit of these defects, but refrain because carping and "pecking" is not a favorite pastime with us. Here before us is a leading magazine which tells its readers that the "*Magnolia grandiflora* in the United States is only found in Florida," and this is but one of a dozen items before us as we write, that we could refer to if so disposed.

We are quite sure if any attaché of an American paper were to write of European matters as Europeans write of us, he would have permission to resign within twenty-four hours.

ABOUT CREDITS TO EXCHANGES.—The New York *Tribune* is sensitive about credits. In a recent paragraph some New Jerseyman "did not want to credit everything to the New York *Tribune*, though it would be but honest and decent to do so," and the editor thinks "every one of our exchanges, without exception, will enjoy the remarks," especially when he thinks the offender, "as in this case" is somebody else.

As one "of the" exchanges "of the New York *Tribune* we resent this implication; and it comes with a bad grace from a quarter which does "just that same" itself only in a little different way. In the number where this complaint appears, there are in "Foot Notes on Farming" at least a dozen paragraphs which have been made up from its "exchanges" without any credit, and we do not see that it is any worse to take the whole as it stands, than to alter a preposition, a conjunction or a few punctuation marks, and then claim it as an "original paragraph." For instance, at page 275 of the *GARDENER'S MONTHLY*, we credited to the Memphis *Avalanche* that "Mr. Stewart the well known nurseryman of that place

(Memphis), tells us that he planted out a lot of *Eucalyptus* in 1877. They grew twelve feet during the season, but were destroyed by the first white frost that killed the potatoes." Then the New York *Tribune* follows with this paragraph, "a lot of *Eucalyptus globulus*, planted in the Spring of 1877 by Mr. Stewart, of Memphis, Tenn., grew twelve feet during the season, and were destroyed by the same white frost that killed the potatoes." Any one can see that this is but slightly altered from our note, but there is no credit to the *GARDENER'S MONTHLY* for the language, or to the *Avalanche* for the fact. Now we do not object to this. In twenty years of editing this magazine we have never made a complaint of any injustice on the part of any one using our "ideas," "facts," or paragraphs. Our exchanges are quite welcome to make any use they choose of what we write, and in any form they prefer; only we do not like to come under the ban that "there are none perfect, no not one" in the proper treatment of the New York *Tribune*, and so are tempted to call attention to what, from its own stand point, it ought to regard as slight indiscretions.

GRAFTING GOOSEBERRIES AND CURRANTS.—Our readers will remember that long before the grafted gooseberries made such a sensation at the Centennial, the matter had been brought before them and the whole secret explained in detail by Mr. Chas. Brulot, at page 196 of our magazine for 1874. Recently a correspondent inquired what had become of the idea, and we replied. We may now add that the writer of that article, who is also one of the most intelligent propagators, as well as practitioner of general gardening in the country, is now at Lime Rock, Connecticut, and any one who really wants to work up the grafted currant and gooseberry business can have a chance to engage with him.

HARVARD BOTANIC GARDEN.—The report of Director C. S. Sargent to the president of the Harvard University, shows a healthy state of progress. The plants are being arranged in the grounds systematically. In the arboretum difficulty has been found in preserving system and yet giving the grounds the advantage of landscape beauty. Mr. F. L. Olmstead is trying to work out a plan, for the incidental expenses of which public spirited Boston gentlemen have contributed \$2,000. It is to be hoped that Mr. Sargent will persevere in his determination not to sacrifice beauty to mere dry arrangement. For our part

we never could see the sense of so much "systematic" thought in the arrangement of trees in an arboretum, as if they were so many dry branches in an herbarium. With a map and guide annually printed, and corresponding with numbered trees on the grounds, anything can be easily found when desired by the student, and then there is no necessity for forcing a dwarf to grow alongside of a giant, nor the swamp-lover be forced to make its bed with that one that wants to lie on dry ground. And then there is no necessity to "leave room" for future additions to the separate groups, but a beautiful plan can be worked out at once. There never has yet been a "systematic" arboretum that was known of, that was finally satisfactory, even as a piece of system, while they have been perfect frights to all lovers of that which is beautiful.

Mr. Sargent takes occasion to show how much is being done for forestry through the medium of the garden, which is one of which all Americans, as well as Boston people, should be proud, for its influence is universal.

MRS. ALMIRA LINCOLN PHELPS.—The *Illustrated Annual Phrenology* for 1879 has a good portrait and account of the life and services of this distinguished and very successful teacher of botany, who, though now in her 86th year, is still hale and active.

MR. F. W. POPPEY.—This excellent landscape gardener has returned from an engagement in California, and is now at Orange, N. J., where those who love beautiful gardens can address him.

MR. DE NIEDMAN.—Our young and energetic botanical correspondent, Vladimir De Niedman, who spent some time last year in Philadelphia, is now exploring the wilds of Australia. The last Summer was spent on the Burdigan, where he narrowly saved his life from the natives, suffering severely from thirst in his escape. He was at last accounts naming and sorting his specimens at Brisbane, and was to start again as soon as the season opens for the "Humptybong."

COL. EDWARD WILKINS.—Few persons when enjoying the results of progress ever think of to whom they are indebted for so much of their pleasure and prosperity until they lose their friends, and then they stop to think of what they have done for them. Thus it is in the death of Col. Ed. Wilkins, of Chestertown, Md., which happened at his home on the 26th of Dec., in his 60th year. He is one of the fathers of the immense modern

peach trade, the dimensions of which so astonish Europeans. His orchards were a wonderful success. The trees with good care and management continue to bear year after year, and many of the trunks are of great size; and he loved nothing more in his pleasant friendly way than to urge them on the editor of this magazine as an illustration of the benefits of clean surface culture, of which he was a warm advocate. He will be greatly missed within a very large circle.

MR. ALFRED BRIDGEMAN.—This gentleman is president of the Newburg Bay Horticultural Society, which has prospered under his management.

A GENEROUS FRENCHWOMAN.—Madame Henri Thuret has, at the price of two millions of francs, or four hundred thousand dollars, lately bought the garden of her deceased brother-in-law, in Antibes, on the coast of the Mediterranean, near Toulon, in France. It is one of the richest and finest gardens in Europe. She made a present of it to the French nation. It is now a national school of botany and horticulture, and a garden for "experimentation and acclimatisation."

This establishment is open for anybody who takes an interest in either botany or gardening and what is more, anybody known as such, or properly recommended as such by known men, gets free lodging in the villa. No distinction is made between natives and foreigners; "there are no nationalities in the republic of science and horticulture."

HON. MORTON MCMICHAEL.—The Fairmount Park Commission, one of the most intelligent and honorable bodies connected with the government of Philadelphia, has met a severe loss in the death of Morton McMichael, who was one of the most active members of the board. He was buried on the 9th of January with full honors from the fellow citizens he had so faithfully served during a long life. At a meeting subsequently his contemporaries told what they each knew of his good works; and in regard to the Park Commission, the Hon. Eli K. Price said:

"You know from his reports how deeply Mr. McMichael was interested in the Park. He was greatly distressed to find how narrow had been its width along the Wissahickon, leaving the upper hill-sides subject to be stripped of their trees and the stream to be polluted by drainage. Within a brief period, on his invitation, we visited that scene. I now repeat his anxiety

upon this subject, in the hope that it may sink deeper in our minds, in association with a memory made sacred by the good he has done, by our love for him, and by his lamented death. He would have preferred this being done to having a monument in the Park. This is a small matter compared with the greater he had been engaged in, but it was that of all public concerns nearest his heart when he entered his chamber to die."

Outside of Philadelphia he will also be missed. In a letter from Hon. M. P. Wilder, of Boston, we have the following, which, though from a private note, we hope he will pardon us for extracting:

"Our orator laureate is gone! McMichael; a man that will ever be cherished in the memories of all who knew him with tender affection and profound respect. No name in the galaxy of American eloquence shines more brilliantly than his. It has been my good fortune to have had him for a friend for more than thirty years. Twice has he been my guest on public occasions in this city within that period, and on both occasions our Boston people were electrified with his surpassing eloquence. As a journalist, orator, and Christian gentleman, we shall look in vain for his superior."

AN ADDRESS ON FORESTRY.—By Dr. John A. Warder. This was given before the Otoe County, Nebraska Horticultural Society on the twelfth of September, last year. It is full of practical matter pertaining to Western tree planting, and should be widely distributed. The day is gone when the belief prevailed that trees would not grow on the Western plains or prairies. We now can see that no department of culture is so likely to be permanently profitable as on these lands that our elders thought would not grow trees at all.

THE PARKS AND GARDENS OF PARIS.—By Wm. Robinson. London, McMillan & Co. Second edition, from Porter & Coates, Philadelphia.

Some years ago Mr. Robinson, the well known editor of the *London Garden*, wrote a series of letters from Paris to the *London Times*, in reference to the horticultural peculiarities of that great continental city; and out of these letters the idea of this book grew. The parks and gardens of Paris have distinctive features which have made them famous over the wide world. No stranger visits them without wishing there were

gardens like them near his own home, no matter where that home may be. Very often he determines to have something like them of his own when he returns to his own country; and if not, at least to influence the community in some public garden or park project like that which gave him so much pleasure abroad. He seldom stops to think that beauty has an outgrowth of its own. No two people want exactly the same thing; and when it comes to the people of distinct nations their wants are widely apart. French beauty is its own; it is not a copy of what others have; it has grown as the French people grew. Especially is this so in gardening, and the art of French parks is decidedly French art.

But there is more than art in beauty. It is a science. It has principles that are almost mathematical in their truth. And so when we examine the delightful garden art of Paris, though we may not become copyists, we can understand why and wherein it is delightful; and the result cannot but be to improve our taste, to render us the more fitted to make beauty out of our own material, and to see beauty in that which is about us, though we may have never thought of beauty there before.

Mr. Robinson's book has been very popular. This is the second edition, which is a good publisher's test of its popularity, and it seems to us that it has been received with such favor, because it has treated this beautiful subject in this scientific way. People have read of the parks and gardens of Paris till it seemed an old story. There seemed nothing left to write about. But they read Mr. Robinson's book about the gardens as if they had never heard of them before, and because he tells how and why they are beautiful. We are made to see every thing in detail, and we learn that some things are not as pretty as we thought they were, while others that we thought common place enough, have a beauty that we never thoroughly understood before. Thus Mr. Robinson's book is not merely an account of the parks and gardens of Paris; it is besides a thorough treatise on landscape gardening, and thorough, because it takes what has already been done as the texts for enlightening us. There is no one who desires to improve his own grounds, or to influence public or town gardening, but will be benefited by its perusal; and indeed if he merely has a taste for natural beauty, and wishes to enjoy correct landscape garden art when he chances to meet with it, it will be a pleasant book to read. We hope it will have a wide reading in America.

CHART OF THE AGE OF DOMESTIC ANIMALS. By Dr. A. Liautard. Published by Orange Judd Company, New York. This seems to be a capital idea. Everybody knows that the age, and often other characters of an animal can be determined by the teeth; but few have had the opportunity of a close study of these points. Yet no one who is buying a horse likes to confess ignorance, and one of the most amusing scenes in horse buying is to see the buyer or seller open a horse's mouth, give a knowing wink or a shrug full of wisdom, but say nothing. With a chart like this fastened up behind the stable door, and where one can easily see and study it, there is a good chance to be wise as well as to look wise; and as a chart like this costs little to buy, it is wisdom at small cost, which is another good thing in these hard times.

THE TEMPERAMENTS.—By D. H. Jaques, M.D. New York, S. R. Wells & Co., publishers. An interesting feature is the numerous portraits of distinguished people. Price \$1.50.

L. B. CASE'S BOTANICAL INDEX.—This is a cheap quarterly, after the manner of Vick's quarterly of the olden time. The wood cut illustrations are remarkably accurate, and the information about the plants illustrated of the highest character. The number before us is especially devoted to an account of Water Lilies. The price is but twenty-five cents a year; L. B. Case, Richmond, Indiana.

REPORT OF THE MASS. HORT. SOCIETY FOR 1877.—From E. W. Buswell, treasurer. This shows a gratifying account of the last year's work. The treasurer points out that while the society has liberally thrown open "competition freely to all," the generous spirit has not met with a corresponding return. The outsiders take the premiums and privileges with avidity, but contribute nothing in return, and the treasurer questions whether it is wise to be quite so open-handed in these cases.

LANDRETH'S RURAL REGISTER.—The cultivator who wants an almanac to hang up in his work-room or office, might do much worse than send a postal to Landreth & Son, of Philadelphia, and get one for nothing; for besides the days of the month and monthly calender, there is many a hint it will do good to be reminded of.

THE ILLUSTRATED ANNUAL OF RURAL AFFAIRS FOR 1879.—From Luther Tucker &

Sons, publishers of the *Country Gentleman*. This is the twenty-fifth yearly issue; price thirty cents, and well worth all it costs.

SCRAPS AND QUERIES.

A SWINDLE. — A Vermont correspondent writes: "A German, giving his name as Chas. Bealeu, from Erfurt, Germany, has defrauded several florists in New Hampshire and Vermont by representing to have brought with him from Germany new double yellow petunias, yellow verbenas, and several other new varieties of plants, and states that Perry & Donovan, of South Framingham, Mass., are storing and caring for them for him until they are sold. He does not

care to sell very large amounts to any one party, and when he can collect one-half cash, the balance to be collected on delivery, the plants of course are never sent. Messrs. Perry & Donovan state that they have received several orders from him to be sent to florists, and they have tried to have him arrested, but he has so far kept clear from them. This rascal should be shown up; and I send the above statement to you that you can publish what part of it you think proper."

[Anyone who pays in advance a total stranger "half cash," or any cash, deserves to lose it all. A list of "ninnies" of this kind would be interesting for publication. We feel quite sure not one of them would be found a reader of this magazine, and this is the reason we think the "showing up" of these aggravations of little practical use in our columns.—ED. G. M.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

GERMANTOWN HORTICULTURAL SOCIETY.—A special meeting of this Society will be held on the evening of the 13th February, at 8 o'clock, when the late President Mr. John Jay Smith, will renew the premium heretofore offered for raising mushrooms commercially, and will conclude the evening by reading one of Lever's most amusing stories.

ST. LOUIS FLORAL AND HORTICULTURAL SOCIETY.—It is hard to understand why "Floral" should have to be added to Horticultural Society, as the last involves the first, but we have a handsome schedule before us with a large list of ladies and gentlemen who are members thereof; showing horticulture to be a living thing about this beautiful city.

INDIANA HORTICULTURAL SOCIETY.—The Indiana Horticultural Society held its 18th session at Danville, commencing December 17th and

held three days. It was by far the most interesting meeting ever held. Representatives and delegates from Ohio, Michigan, Nebraska, and Iowa, were in attendance, besides the home attendance. The next meeting is to be held in Dublin, Ind.

AMERICAN POMOLOGICAL SOCIETY.—It is well to remember that the biennial meeting of the American Pomological Society is to be held this year at Nashville, Tenn., and it is time Southern horticulturists especially are working up the fact. Some few Southern horticulturists have scarcely ever failed to attend the meetings of the society wherever they have been held, but the great bulk of those who have sustained the society have been Northern and Western men. Two recent meetings have been held in the South—Baltimore and Richmond. It costs heavily for the great bulk to go so far away from home, and Nashville this year is still farther away. But we are quite sure the Southern people, in both pleasure and information, will make it attractive to a large attendance.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

With March almost any flower seeds may be sown. Choose a time when the surface is a little dry, and the earth will powder under a slight blow. Sow the seeds shallow, barely covering them, but beating the dryish earth firmly after sowing.

Divide herbaceous plants when required; this work cannot be done too early. If delayed till after the plants have grown into leaf, the flowering will be very weak.

Plant trees and shrubs as soon as the earth is a little dry. Ram the earth tightly about the roots. Few do this work well, and more trees die from loosely filled in earth than from any other cause. Trees never need water at transplanting if the earth is rammed in tight enough. If the roots have been injured in digging, or the branches or roots are somewhat dry, prune the branches accordingly. Fibrous rooted trees suffer more from drying than those with a few coarse roots.

In laying out new places of small extent, be careful of aping "principles of landscape gardening" that are only applicable to places of large extent. Remember that everything we do should have a meaning, and that this meaning as often depends on the time and circumstances as on any real existence in the principles themselves. It

will be a failure to attempt to make a two hundred feet square lot look like a "country place." It is better to make the gardening border a little on the artificial. In this, terraces, vases, and architectural objects will afford much assistance; and neatness, polish, and finish generally, be more pleasing than the sober negligence that should characterize a more quiet and extensive natural scene.

Shrubs are not near enough employed in planting small places. By a judicious selection, a place may be had in a blooming state all the year; and they, besides, give it a greater interest by their variety than is obtained by the too frequent error of filling it up with but two or three forest trees of gigantic growth. Plant thickly at first, to give the place a finished appearance, and thin out as they grow older. Masses of shrubs have a fine effect on a small place. The centre of such masses should be filled with evergreen shrubs, to prevent a too naked appearance in the winter season.

Ornamental hedges judiciously introduced into a small place, add greatly to its interest. No easier method offers whereby to make two acres of garden out of one in the surveyor's draught. The Arbor Vitæ, Chinese and American, Hemlock, Holly, Beech, Hornbeam, Pyrus japonica, Privet, and Buckthorn may be applied to this purpose.

It is well to again remind the reader of what we said last month, not to lay out too much work for the year, but to see that what is planned is executed tastefully and well. The true art of gardening does not consist so much of having everything on one's ground as in the combinations. One thing should be made to help the other. The garden should not be merely a collection of all sorts of things like a museum, but the collections should form one delightful garden. Even plants that are weeds in some situations can be made very effective in the make up of a garden.

COMMUNICATIONS

BEECH HEDGES.

BY F. H., ROCHESTER, N. Y.

Mr. Miller has done good service by calling attention to the varieties of the Blood-leaved Beech for hedges. He is undoubtedly correct as to the seedling Blood Beeches reproducing themselves. When in the Hamburg nurseries, some years ago, they had crops from seed every year, and a very large proportion came blood-leaved like the parent tree. By a judicious selection these were in most respects as good as the parent tree, and in some respects better.

The only point I see to add a word to besides what Mr. Miller says, is not that seedling trees are any better than grafted trees in themselves for hedges, but that seedlings may be better than the particular kind that is usually grown by grafting in our nurseries. This is known as the "Rivers' Purple Beech," being from a favorite tree of Mr. Rivers', and from which almost the whole stock in the trade originally came. This tree happens to be a very strong tree in its leading shoots, and has not much tendency to make side branches, and in this way it makes a nice large tree sooner than the usual seedling tree. Again, this tendency to growth in one long shoot gives the tree a sort of weeping character when old, as the branches hang over by the weight of leaves. The leaves are larger than the common English Beech, and they retain the blood-leaved character much longer through the Summer season. These advantages make the Rivers, or common Blood-leaved Beech, much more desirable for an ornamental tree; but, as Mr. Miller observes, the lank growth is just so much against it as a hedge

plant, though perhaps this may not be objectionable when pruned in a hedge, which would have a tendency to make it thicken out.

However this is but a theory, for I have never seen a Blood Beech hedge, though I am sure it must be a very pretty object and a desirable thing to have. But what I want to say is that as we cannot always get seed to sow, we can at least graft from these bushy seedling plants. And if there is to be any demand for Blood Beech hedge plants, why not graft a lot from these instead of the lean and lanky Rivers kind?

THE RETINOSPORAS.

BY MR. JOHN JAY SMITH, GERMANTOWN, PA.

Mr. S. C. Moon, of Morrisville, Pa., has given valuable and accurate information regarding the beautiful family of Retinosporas, and the readers of the MONTHLY would no doubt desire more from such an able pen.

Will the editor permit the addition of a few more words. The Retinosporas propagate readily by laying the lower branches with the usual cut half through. In this way a stock can easily be procured and rapidly.

Permit a reader to add that the January number of the MONTHLY is perhaps the best ever issued. Go on, and perfection will be attained.

THE NEW FASTIGIATE POPLAR.

BY PROF. C. S. SARGENT, BROOKLINE, MASS.

I translate from a letter lately received from Dr. Charles Bolle of Berlin, the following information concerning the fastigiate Silver Poplar, which has been called *P. alba Bolleana*, and which thanks to my correspondent will soon be tested in this country. Dr. Bolle's information is derived from a correspondent living at Teflis in Southern Russia. This gentleman says: "several very finely grown specimens of the pyramidal Silver Poplar may be seen in the public garden of Teflis. As the garden was laid out and planted by a fugitive Persian Prince, whose name it still bears, it is probable that this tree was originally brought from Persia. The fastigiate Poplar is perfectly hardy in this climate where the thermometer falls to 4° Fahrenheit. It grows rapidly in any slightly moist soil, and is particularly noticeable for its habit and great size, completely dwarfing the Italian Poplar with which it is associated. The bark, even in old specimens is smoothed out as if it were pol-

ished; it is of a clear bluish green color without spots or cracks. The ramification is strong and characteristic. The brilliant white of the lower side of the leaves, which remains unchanged in its purity throughout the summer, makes a strong contrast with the dark green of the upper side, producing a striking effect, and rendering this tree visible at a long distance. The wood of the fastigiate Poplar is of finer quality and more highly esteemed here than that of the other poplars. It is an ornamental tree of the first order, and I cannot too highly recommend it."

ARUNDO CONSPICUA.

BY MR. A. VEITCH, NEW HAVEN, CONN.

Several years ago I was delighted to see a cut of this fine grass in the *Garden*, accompanied with the statement that it was hardy in Great Britain, and from the information thus received two New England florists imported plants which have repeatedly flowered with them since. Being somewhat of an admirer of grasses, several plants soon after came into my possession, which have also flowered, and I find it fully up to the high character with which its introduction was heralded.

From a later notice in the *Garden* I observe that it is still known in England as *Arundo conspicua*, but for what reason does not very clearly appear, seeing that it differs in some important particulars from *Arundo*—taking *Donax* as a proper representative of the genus. In *Donax* the spikelets are three-flowered, flowers sessile and perfect, silky-villous at their base; styles, two; stamens, three; glumes about equal in length, and three-nerved; palea, three-nerved, slender, tricuspidate, and scarcely longer than the hairs.

Arundo conspicua.—Dioecious. Spikelets on female plants mostly five-flowered, pedicellate; glumes about equal in length and lanceolate with conspicuous middle nerves and bicuspidate tips; upper palets shorter than the hairs; the lower three-nerved, their long bristle points exceeding the copious silky hairs in length and thickness. Spikelets on male plant three-flowered, pedicellate, with clusters of short hairs at their base; glumes bicuspidate; panicles more contracted than those of the female, varying from white to rusty brown in color, and less valuable for ornamental purposes.

This description of the *Arundo conspicua* so nearly corresponds with that of the *Pampas*

Grass, *Gynerium argenteum*, that it applies almost as well to the one as to the other; and yet there are differences betwixt the two which should not be overlooked. The *Pampas Grass* has the broadest and widest spreading foliage; the glumes not so generally cleft at the tips as are those of the other, and perhaps the panicles are clothed with a softer and more delicate wool. But as both are strictly dioecious and also possessed of several other features in common, we are inclined to think they belong to the same genus—and perhaps no violence would be done to any rule of classification were the one to be regarded as a species, the other as a variety. Under this impression I exhibited a plant of the *Arundo conspicua*, so-called, at a horticultural meeting last Fall, bearing the name of *Gynerium argenteum Novæ Zealandiæ*, and will continue so to designate it until some one in authority shows why it should receive another name.

EDITORIAL NOTES.

ART IN ARBORICULTURE.—We have frequently suggested to our readers how much more pleasure they could derive from their gardens, if more effort were used in bringing out some of the peculiar features of trees and shrubs. We are again reminded of this by the following note of Mr. Shirley Hibberd's in his *Gardener's Magazine* in regard to the *Pyracantha*, which is applicable to many parts of our country where the plant grows as well as in England:

"My standards have ripened their berries in advance of trees trained to walls. From the 24th of August they were conspicuous for their strong red color, although they have not yet acquired the splendid fiery glow by which they will soon be distinguished. There is a standard *pyracantha* at Kew, and I recommend lovers of hardy trees to see it, and thereby form an estimate of the value of this fine evergreen when grown in such a form. What a grand feature would a few dozen standards make spread out with ample space between on the grass in some of the London parks! Would that some of our managers would make the trial."

LEGACIES FOR TREE PLANTING.—In the past time Philadelphians have seen the value of trees in cities. The legacy of Elliot Cresson, which was bequeathed in 1857, provides as follows: "I give and bequeath to the Mayor and

community of Philadelphia the sum of \$5,000, in trust, as a perpetual fund, the income of which I desire shall be annually, forever, expended in planting and renewing shade trees, especially in situations now exposing my fellow-citizens to the heat of the sun." The will of Andre Francois Michaux, of Vaureal, near Pontoise, France, dated September 4, 1855, bequeathes the sum of \$12,000 to be divided equally between the American Philosophical Society of Philadelphia and the Society of Agriculture, Art, etc., of Boston, Mass. Of late years city trees are rapidly being destroyed by the neglect of the gas companies to make the mains gas-tight, the leakage under ground destroys the roots. It would seem that those who have the above legacies in charge might take some interest in this gas-killing question. It is as useful to preserve a tree after it is planted as to get one planted in the first place.

ABSURD PRACTICES.—It is very often the case in horticulture, as well as in many other branches of human employment, that practices often continue after the reasons which induced them have long ceased to exist. It is said in the recent "memoirs" of Prince Bismarck that "One day I was walking with the Emperor of Russia in the Summer Garden of St. Petersburg, when, coming upon a sentinel in the centre of a lawn, I took the liberty of inquiring why the man was placed there. The Emperor did not know. The adjutant did not know. The sentinel did not know, except that he had been ordered there. The adjutant was then despatched to ask the officer of the watch, whose reply tallied with the sentinel's—'Ordered.' Curiosity awakened, military records were searched, without yielding any satisfactory solution. At last an old serving man was routed out, who remembered hearing his father relate that the Empress Catherine II., one hundred years ago, had found a Snowdrop on that particular spot, and given orders to protect it from being plucked. No other device could be thought of than guarding it by a sentinel. The order once issued was left in force for a century." It is more than likely if the planting of the Snowdrop had been examined, some practice as silly would have been found as the keeping of the soldier guard over them.

LANDSCAPE GARDENING.—The landscape gardener has in his mind a beautiful picture of the future, and he plants accordingly. The little scattered trees and bushes are put where they will work admirably fifty years hence. It is not

surprising that proprietors are often dissatisfied with the best work of the landscape gardener. They cannot see as the landscape gardener sees. They want results now, and not merely to please their future grand-children. It is well enough to have these future thickets and groups outlined by a dozen or two of trees, but why not fill in thickly with commoner things so as to have results now? Thus thought the writer as he passed a pretty circle of evergreens on the level lawns fronting the office of Hoopes Bro. & Thomas, at Westchester, recently. A few score of dwarf evergreens made at once a handsome clump of green on a field of snow. The average planter would have had a half dozen plants scattered a dozen yards or so apart, because sometime in 1880 they would perhaps touch each other. We pass continually these weak conclusions. The little "clumps" near gate-ways will look like clumps some-day; but why not have them now? It is as easy to have the perfect body as these ugly skeletons lying around.

NEW OR RARE PLANTS.

NEW HARDY TREES AND SHRUBS.—The collection of Parsons & Sons Co., contain the following, which have either not been noticed at all or very briefly in our pages:

Betula alba fastigiata. Branches grow very upright, forming an elegant pyramidal tree, resembling the Lombardy Poplar.

Betula alba purpurea. Foliage of a beautiful purple color, as dark as that of the Purple Beech, and contrasting beautifully with the silvery bark.

Broussonetia papyrifera cucullata. A very fine variety, with its large leaves curled down around the edges.

Carpinus betulus incisa. A very handsome slow growing tree, with shining leaves very deeply cut. Can be pruned into any shape.

Catalpa Bungei. Leaves large and glossy; flowers in large clusters a foot long. An ornamental low tree.

Betula syringæfolia aurea. Leaves large and entirely suffused with a permanent golden color, giving a beautiful warm tint to the foliage. A remarkably handsome tree, with noble foliage of peculiar character and long clusters of fragrant, white, variegated flowers in August.

Cerasus padus flore-pleno. An exceedingly pretty low tree, with pure white, semi-double flowers produced in great profusion.

Maackia amurensis. A very ornamental tree, resembling the Virgilia, with pinnate leaves and small greenish-white flowers in long dense racemes.

Quercus Mongolica. Mongolian Oak. Leaves long, deeply notched, of a fine glaucous green color. A very handsome rare tree with noble foliage.

Quercus pannonica. Hungarian Oak. A remarkably handsome strong growing tree, one of the finest of oaks, with large deep-lobed leaves of a dark shining green color.

Quercus p. concordia. One of the most effective and beautiful of trees. Leaves large and bold, entirely suffused or spread over with a bright golden color, which grows deeper as the season advances, and gives a delightful warm tint to the foliage.

Quercus p. fastigiata cucullata. A peculiar form of the Pyramidal Oak, with leaves curled down at the edges.

Quercus p. nigricans. Leaves of a deep purple color when young, changing to a purplish-green later in the season. The contrast of the young purple growth with the green foliage is very ornamental.

Quercus p. pendula. A very rare, graceful and remarkable tree, with long slender drooping branches, no thicker at any part than a wagon rope. It is similar in its weeping character to the common willow, but with longer to branches.

Quercus pyrenaica pendula (tauzin pendula). A weeping variety of the Pyrenean Oak. Its leaves, when young, have a reddish tinge and a dense covering of woolly down, which give to the tree, in early Spring, a singular and very beautiful appearance.

Callicarpa Murasaki. Flowers red in clusters in June. The most ornamental of the family on account of its larger and more showy violet-blue berries in Autumn, which give it the appearance of being covered with flowers.

Cotoneaster frigida. Flowers small, snow-white, produced in flat clusters in great abundance in April and May. Leaves larger than any other of its family. The bright red berries are very ornamental in the Autumn, and in mild seasons and sheltered situations remain on the plant all Winter. A very robust ornamental shrub or low tree.

Dimorphanthus mandschuricus. A rare and ornamental plant with pinnate foliage, much resembling that of the Virgilia.

Rhus Osbecki. Osbeck's Sumach. A new shrub from China, with remarkable ornamental foliage, very beautiful for its Autumn tints.

Aralia japonica. A very interesting, low tree, of shrubby character, with prickly stem and shoots, and very large compositely divided leaves. A singularly ornamental tree, with a spreading, umbrella-like head.

Berberis hakodati. A very ornamental shrub, with thick, leathery, glossy leaves.

Broussonetia Kampferii. Japanese Paper Mulberry. A rapid growing tree, with large oblong leaves of a deep green color and with reddish ribs.

Cerasus japonica pendula. The favorite weeping tree of Japan. The trunk rises upward, while the branches fall regularly and in graceful curves to the ground. A great acquisition, and especially beautiful when in flower.

Cornus brachybotrya. A fine large shrub, or low tree, with large leaves, and habit of growth like that of *Cornus florida*.

Cydonia japonica grandiflora. Flowers very large, of a beautiful rosy pink color.

Daphne Genkwa. A beautiful, slender, upright growing shrub, with numerous long downy twigs, which in early Spring, before the leaves appear, are thickly garnished with violet-colored tubular flowers, rather more than one inch long. It seldom attains the height of more than three feet, has fine delicate foliage, and may be classed among the best of our flowering shrubs.

Daphniphyllum glaucescens. A very fine shrub, with laurel-like leaves, yellowish-green above and glaucous white beneath.

Elwagnus longipes. Japan Oleaster. One of the finest and most remarkable of hardy shrubs lately introduced. It is of middle size, with spreading branches, and leaves bright green above, and silvery white beneath, studded with brown scales. The small yellow flowers are produced in great profusion on long stalks, and are succeeded by berries of an oblong shape, and deep transparent orange brown color, speckled with brownish scales.

Fraxinus elonza japonica. Ash. A distinct and vigorous growing tree, with small leaves. The young branches droop very gracefully.

Magnolia hypoleuca. One of the most attractive of this large family, on account of the fragrance and lateness of its bloom. Flowers milky white, resembling those of *Conspicua*, but larger, with a most delicious, banana-like odor, and appearing about the middle of June. Foliage

bright and attractive, with the underside of the leaf whitish.

Magnolia stellata (Halleana). The most elegant of magnolias, very distinct and individual in its character, and blooming very young. It forms a round, symmetrical, middle-sized bush, which is covered in early Spring before any other magnolia, and before its leaves appear, with exquisite semi-double flowers. These flowers resemble the water-lily in the translucent whiteness of their many narrow petals, and surpass all others in delicate, subtle odor. Leaves oval, medium-sized, of a rich green, appearing late.

Magnolia Thurberi. A very pretty shrub, growing stronger and more upright than the last, with flowers similar, but more of a creamy color, and not appearing until the plant is well matured.

Malus Halleana. A beautiful variety of the apple, with flowers of a lively deep rose color at the base, and a lighter shade at the edges.

Morus Tokwa. A fine species of mulberry, much resembling *Morus multicaulis*, or silk-worm tree.

Planera Kiaki. Japanese Plane-tree. A very fine tree, with large smooth glossy leaves, deeply dentated.

Pterostyrax hispidum. An exceedingly handsome shrub or low tree, bearing in Spring graceful pendant clusters of creamy-white Deutzia-like flowers, with a delicate and grateful odor. Foliage large and handsome.

Quercus Dainyo. A very rare and handsome oak of great value, with large, broad, oval, leathery leaves of a glossy dark green color, and covered with a brownish down when they first unfold.

Rhodotypos kerrioides. A very pretty shrub with numerous pure white flowers, resembling those of the *Althea*, but smaller.

Salix Sieboldiana. A very strong growing and distinct species, with larger leaves than is usual.

Spirea crispifolia. A beautiful compact little bush, with small, dark green, curled leaves, and bearing numerous delicate pink flowers throughout the season.

Actinidia polygama. A beautiful climber of elegant appearance, with flowers small and white, like those of the Tea Plant, and very sweet.

Cocculus japonicus. Attractive twiners, resembling *Menispermum*, with yellowish flowers in June, followed by very ornamental scarlet berries.

Dolichos japonicus. A handsome and very

rapid growing twiner, resembling the *Wistaria*, with very long racemes of flowers, in which are mixed the purple and white colors.

Wistaria japonica. A very handsome and rapid growing climber, with purplish blue flowers on immense racemes, about two feet long. This and its varieties are all shy bloomers until well grown, in a sheltered spot.

Pinus densiflora. Japanese Red Pine. A very fine ornamental tree, of compact habit, with long spreading branches and bark of an ashy-gray color. Foliage of a fine dark green.

SCRAPS AND QUERIES

HARDINESS OF THE CLIMBING HYDRANGEA.—A correspondent at Paoli, Ind., says: "Will some one who has tried the climbing *Hydrangea* be so kind as to tell me whether it is hardy north of Kentucky or not? I have an *H. paniculata* bush I bought last Spring. Last Fall it bore two very large trusses of flowers besides several smaller ones. I am a fond admirer of hardy flowers. I have several varieties, but think there is none equal to my *H. p.* If the *c. H.* is hardy I shall secure a plant this Spring."

YUCCA GLORIOSA IN TEXAS.—A Mission Valley correspondent writes: "A few years ago *Yucca gloriosa* was abundant on our prairies, and seemed to me a prince in the floral kingdom. It diversified every landscape twenty-seven years ago. When I first came to Texas, I wrote a volume of *Sketches of the Southwest*. I concluded to keep them till they were forty years old and have them published then to show contrast. In this I wrote a description of the *Yucca* as it then looked to me when I first came from New York. At some leisure time I may send this description to you."

[It would be a pleasure to receive it.—ED. G. M.]

SOPHORA SPECIOSA.—A Texan correspondent writes: "We have a broad leaf evergreen here that is the perfection of beauty. *Sophora speciosa*, a native of this region, ten to twenty feet high; leaf oval, very bright green, flowers purple, pea-shaped, in large clusters; blooms abundantly; a fragrance equal to Cape Jasmine. There is a thicket of *Sophora* on my premises that I have, under favorable circumstances smelled at a distance of 400 yards."

PLANTING IN THE PHILADELPHIA SQUARES.—S. S. P., Philadelphia, asks: "Can you tell me who is responsible for the planting of evergreens in our public squares located in the built up portion of the city, as they do not seem to learn by experience, continuing to plant the same class of evergreens only to have them eke out a miserable existence of a few months, to the great disgust of those who feel an interest in the ornamentation of the squares. As you are well aware, evergreens never have done well planted in our city, or in New York, Baltimore or Boston, but nevertheless our city fathers continue to plant them, without any regard to the waste of money it entails, or their utter unsuitableness. Perhaps you can also tell me from what class of men, are selected those to whom the planting is entrusted, from the manner in which the holes are dug and the trees tumbled in, I have been led to suppose they had been educated as grave-diggers, so admirably do they seem suited for the purpose. Certainly they never before planted trees, which requires the greatest care if they are expected to succeed, and you can well appreciate how a lover of arboriculture feels when he sees his favorites crowded into small holes, just large enough to receive them, and left without any support to be blown about by the winds, before they are able to take care of themselves. Now, I do not propose being critical, but merely ask for information; may I trouble you for light?"

[The planting in the city squares is done by the Commissioner of City Property; and is usually carried out under his immediate supervision or direction. He probably does the best he knows

how, but he cannot be expected to know whether a man is 'a grave digger,' or a skilled gardener. If the citizens of Philadelphia, or any other large city cannot invent a plan by which those who are fitted for the several offices shall get into them, they have little right to complain when the only plan they can think of does not work as they wish. Under the present system those who are already in office decide who shall be the candidates for vacant positions, and it is but human nature that friends, irrespective of fitness should be the lucky persons. To suppose that those who thus decide who shall be city commissioner should give the office to a stranger who knows something to a personal friend who does not know, is not in accordance with every day experience. So far as Philadelphia is concerned it is a matter of surprise that, considering the system under which the office-holders are nominated by other office-holders, they generally do so well; and it is an argument that there is more good in humanity generally, than it gets credit for. In this case of the city squares we fancy the present commissioner does quite as well as any other gentleman would do elected under such a system and we are not disposed to criticise him harshly when it is the system of nominations that is to be blamed for all this scandalous waste. Bad as the squares are now, we have seen them very much worse than they have been the past few years. Evergreens would grow very well in the city squares if half the deciduous trees were taken out, as they ought to be. Neither grass nor evergreens will grow where the whole earth is a mass of roots from mature trees.—ED. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

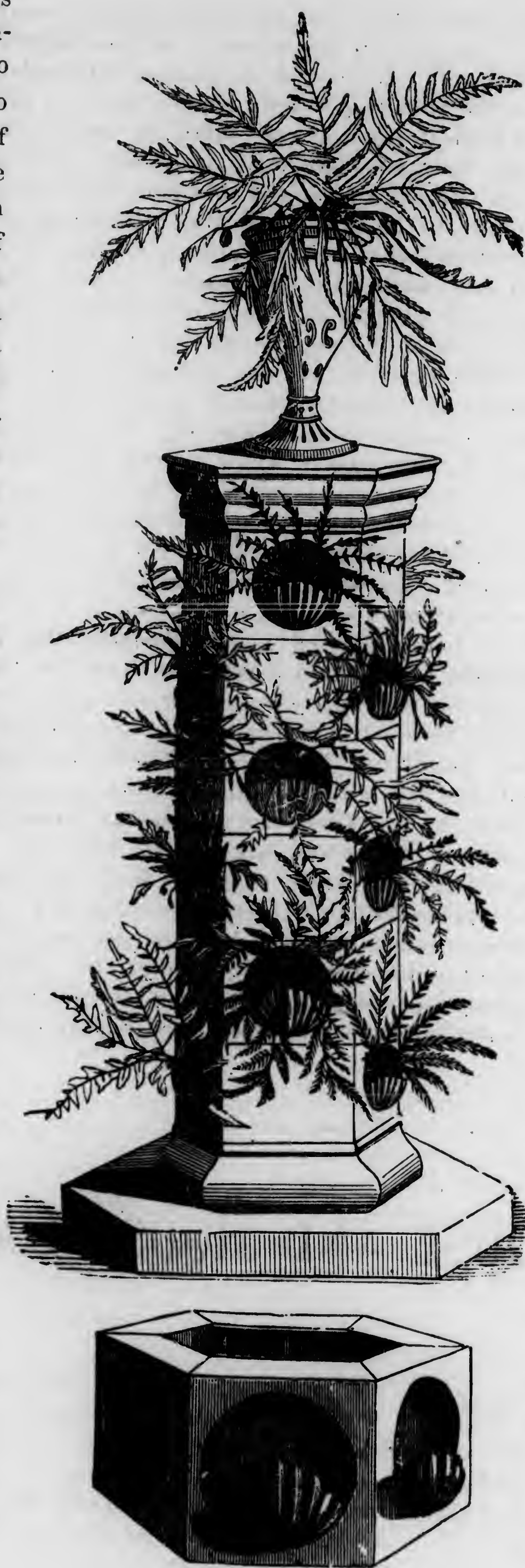
SEASONABLE HINTS.

The fern offers itself as one of the best classes of plants to use in house and conservatory gardening. As a rule they are petted too much. There are some kinds which will only do under closely glazed cases, or in dark rooms, or in damp situations; but the greater number of them

will do very well when treated as ordinary plants. Of course if one desires to get extraordinary specimens, such as we see in the hands of skilled gardeners, and are often brought out at horticultural exhibitions, these little niceties of cultivation must receive due attention; but as a rule creditable plants can be produced by ordinary skill. One advantage which they possess

over ordinary plants is that they lend themselves more readily to make designs adapted to the limited demands of home life. There are many illustrations in books and magazines of fern stands and fern cases. We give with this an illustration of a fern pillar, and there are many plans intermediate by which much more interest may be had from ferns than is usual.

This fern pillar is constructed in segments, one of which is shown at the base of the complete pillar, so as to allow of the plants being placed in the shells set at openings of the circles. As the plants are set in through the holes in the shells of course the earth is placed in. When a section is planted, filled with earth, and finished, another section is placed on, and the work of the last section repeated, until the whole is finished. If the shells are properly adjusted, water can be given each plant in the shell, and the waste water will enter the mass of soil in the column, and there would be none to escape from the base to soil carpets; but for security the pillar, if in a room,



should stand on a piece of oil-cloth. It might in some cases be found necessary to have an ornamental dish or "sauce" made to catch the drainage. This pretty pillar was designed by Mr. Tzerman, of the Manchester Botanic Garden, some years ago, and was intended to be made of terra-cotta materials. But it could be made of wood at no great expense, to last for several years, or modifications of the forms to suit materials at hand.

After the Winter is fairly over, and it becomes time to set the pot plants out of doors, most ferns may be set under trees, or other shady places, just as other plants are, and some people even set them out in the ground in the shade, and re-pot towards Fall.

Towards Spring, insects are more apt to abound in plants under glass than at other times. Coal oil is yet one of the best remedies; about half a tea cup full is poured on a barrel of water. In syringing, one syringe full is forced down into the barrel and then a second one rapidly drawn out, or otherwise all the oil keeps at the top of the water.

COMMUNICATIONS.

ORCHID CULTURE.

BY W., NORFOLK, VA.

I have read with interest the articles of C. H. S., Baltimore, and others in your columns, regarding orchids and their culture. It is an encouraging sign, that a lively interest seems to have been at last awakened in this country, in that most curious and entertaining class of plants, than which none are of greater delight or productive of more pleasure to the amateur.

We are slowly following in the footsteps of our English cousins, who long since ranked these plants among their choicest treasures, and searched tropical climes far and wide to obtain new and rare specimens, often at the cost of great labor, and large expenditure of time and money. It will be many, many years before we can hope to attain such proficiency in their culture, and still I am informed there are several collections in this country very creditable to their owners, if not the equal of some in Europe.

Perhaps the want of attention to this class of plants has been from a mistaken idea as to their culture and the care they require. New light regarding these matters seems to have been recently disseminated, and it is not now, as formerly considered, that a hot, moist atmosphere is a necessary essential to their growth and development. Particularly is this true of some of the Mexican orchids, and those from the cooler altitudes of South America, many of which will flourish and blossom beautifully with ordinary greenhouse heat, and when in bloom can be removed to a parlor or sitting room, when their flowers will remain in perfection a long while. In fact, experiments have been made and well nigh proved successful in growing them without heat, even during the summer months in the open air, as your correspondents and those of the *Garden* have told us. When grown with other plants, the varieties upon blocks and in hanging pots and baskets suspended from the rafters of the house, as well as those interspersed with ferns and palms, by the brilliancy of their flowers, add to the beauty of the rich display, and present a pleasing contrast; a very good idea of which may be had from the cut in *The Orchid Grower's Manual*, to which you have referred, page 15. Such an attempt is now being made in this country by Mr. Daniel Barker, at his spacious greenhouse, at the Brambleton nurseries,

near this city, with a large and varied consignment of *Laelias*, *Cattleyas*, *Stanhopeas*, *Odontoglossums*, and other Mexican orchids, many of which are now rapidly coming into bloom. These plants appear to be in fine condition, if the immense leaves of the *Stanhopeas*, most extraordinary in size, and the strong flower-stems of the *Laelias* are any indication, and it does not seem unsafe to conclude that his experiment will prove a success. If as now seems probable, it should be fully demonstrated that the popular idea of growing orchids has been an erroneous one,—and the high authority of Mr. Williams' manual leads to that conclusion,—there is no reason why every greenhouse should not be favored with the presence of many of the hardiest and most beautiful of their class, and the taste for them become as popular here as in Europe, now that the competition of trade has brought them within the means of every lover of flowers.

PETER HENDERSON CARNATION.

BY N. N. & NEUNER, LOUISVILLE, KY.

In reply to enquiry "Carnation Peter Henderson," in November number we would say the new white perpetual Carnation Peter Henderson is distinct in foliage, growth and flower from any of the varieties named or any other in existence. We also will state here, that we believe some Eastern florists sent out last Spring, even to our city, the Peerless or Edwardsii Carnation instead of Peter Henderson. Perhaps the Edwardsii Pink has been a victim of the same dishonesty.

We would be glad to hear of the success with our carnations from florists which cultivate it now, and trust their reports will be as favorable as those on hand from some of the leading carnation growers in this country.

ROSE CULTURE FOR WINTER BLOOMING.

BY MR. WM. BENNETT.

Prize Essay, offered by Mr. Peter Henderson, read before the New York Horticultural Society.

At the regular monthly meeting of the New York Horticultural Society, held at the rooms of the society, on November 5th, 1878, Peter Henderson, Esq., offered a premium of \$25.00, to be given to the person who should write and present the best essay on "Rose Culture for Winter Blooming." John Henderson, C. L. Allen and Jas. Dean, Esqs., were appointed a committee to whom essays should be presented by competitors, and who should decide as to the merits of

the several essays, and report the result to the society. At the annual meeting of the society in December the committee made the following report:

"The committee appointed to report on Rose Essays for Mr. Henderson's special premium, are unanimous in giving the award to Essay No. 3. JOHN HENDERSON, JAS. DEAN, C. A. ALLEN."

The secretary announced Wm. Bennet, florist, of Flatbush, as the author of Essay No. 3. The report of the committee was concurred in, and the essay was referred to the finance committee, with instructions to print.

No. 1. *Propagation of the Rose*.—This is done by means of cuttings and budding. When you are striking cuttings to plant out in a house, or to grow on in pots, you should always select your cuttings from the best and strongest wood that you can get; for as sure as you make a bad cutting a bad plant is the result. Strike as early in the season as possible. After the cuttings are once rooted never let them suffer for want of pot room or water. No matter whether they are to be grown on in pots or planted out in the border they should never be allowed to become stunted.

No. 2. *Preparation of the Border*.—The border should consist of a good tenacious loam; if old sod so much the better. No manure whatever should be intermixed with the soil. The border should be thoroughly drained by means of brick-rubble, broken stones, or rough material of any kind, to the depth of eight or ten inches; cover the drainage with sod, grassy side down. The soil should be at least twelve or fifteen inches deep. The border should be when finished from twenty to twenty-four inches above the level of the floor. I have never seen good roses where the border was made below the level of the floor.

No. 3. *Selection of Plants*.—Take young, vigorous plants that are rooted in December or January. Never, in any case, plant old plants if young can be obtained.

No. 4. *Kinds to Plant*.—Bonsilene, Safrano, Sprunt, Cornelia Cook, La Sylphide, Douglass, Niphetos, Madame Falcot, Pearl des Jardins and Maréchal Neil.

No. 5. *Time of Planting*.—If house and all things are ready for operations, I would plant on the first of March. For treatment of young plants after planting, say the plants are all set out in the bed from eighteen to twenty inches apart, I first of all top-dress the whole surface

of the bed to the depth of two inches with good stable manure, about half rotten. From this time I syringe the young plants twice every day, provided the day is clear. Water sparingly at the roots until the young plants are well established in the new soil, and as the heat of the season advances give water freely—a good, thorough soaking once a week, none of your homœopathic doses. If the above directions are closely followed, by the first of September you will have a house full of fine young roses from two to three feet high.

No. 6. *Watering and Syringing*.—If there is one thing the rose delights in more than another it is plenty of water, and especially when it is growing freely frequent waterings of manure water. When the crop is coming in give less water than at any other time, for the reason that it improves the color of the buds. Drying at the roots in summer time is practiced by a great many growers. My experience teaches that this is radically wrong and absurd in the extreme. I syringe freely once or twice a day, according to the brightness of the weather, except when the crop is in, then I withhold the moisture to a considerable extent, as I am convinced too much moisture at this period causes the buds to come pale and washy looking.

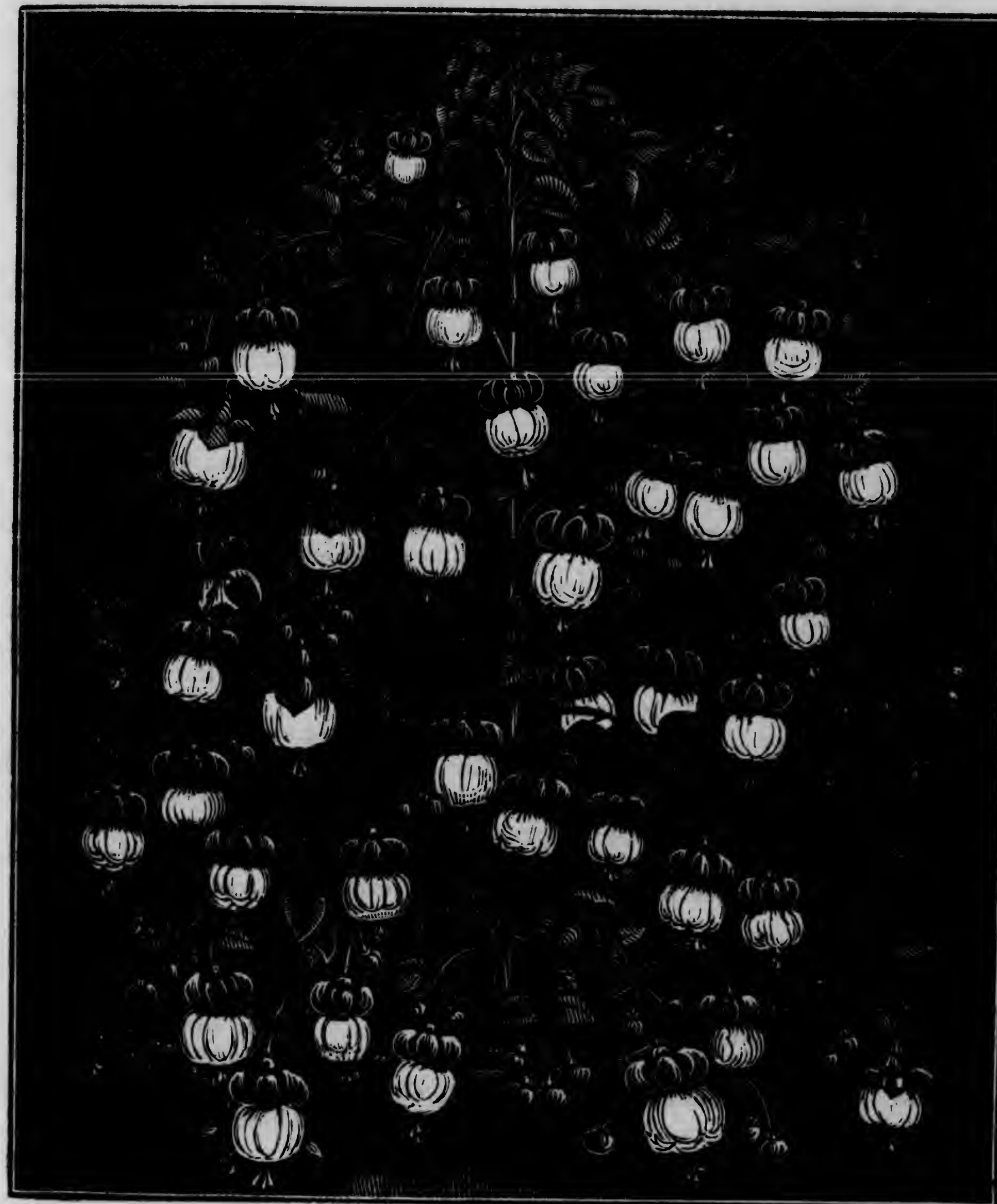
No. 7. *Pruning the Rose*.—This, in most cases, is badly done. In fact you might say it is not done at all, and about as little understood. The first season the young plants will require little, if any pruning further than cutting out the small useless sprays. By the end of the second season the plants will be large and strong, provided all has gone on right; a judicious pruning will be necessary. In pruning it requires a practiced eye to discriminate readily which shoots to take out and which to leave. In doing this keep an eye to taking out all the weak and useless wood; then shorten back the good strong wood, but be careful not to deprive the bushes of all their foliage, for as sure as this is done a weak and puny growth will be the result, with buds as miserable as the foliage. At one time I used to deprive my plants of all their foliage by severe pruning. Experience, however, has taught me that this is a wrong practice. For the past three seasons my rose houses, after pruning and tying down, have been as green as in the depth of Winter. The result has been a fine break of vigorous young growth, and buds as fine as could be desired.

(To be concluded in next number.)

EDITORIAL NOTES.

BEAUTIFUL FUCHSIAS.—It is to be regretted that persons do not oftener try their skill in growing fine specimens, as well as in having good varieties. It is just here that true gardening

small pot, and there is no reason why almost any of our readers might not grow one at least nearly as well. And yet how seldom do we see a fuchsia grown that has more than a dozen flowers on at one time? The great want of the day is more skill put into the individual culture of pot flowers.



skill comes in. The Fuchsia above many things is admirably adapted to make well grown specimens, but how rarely do we see anything at all creditable to culture about them. Annexed is a specimen of a double white kind from the Greenbrook and Paterson nurseries of Paterson, N. J., by Mr. Wm. Grieves, in a comparatively

LANTANAS.—It has always been a matter of surprise that the Lantana has not been more popular than it is in American gardens. Of one species, L. Camara there are now numerous varieties of white, orange and crimson shades, and fully as beautiful as the varieties of its near neighbor the verbena. Small plants, struck in the

Fall, bloom profusely in February and March, and are excellent as Spring ornaments in conservatories. The plant loves heat, and hence it blooms freely in the open air all through our warm Summers.

PRICES OF ORCHIDS.—How popular orchids are in England may be judged from prices often paid for them. At a recent public sale of the bankrupt stock of Rollinson & Sons, some of the moderate sized plants sold brought \$15, while some brought as high as \$60. It is one of the advantages of an orchid plant that it grows rapidly in value with age, as the increase is slow, and plants of one kind rarely become numerous.

CRASSULA LACTEA.—This interesting Winter-flowering room and conservatory plant, to the merits of which we have repeatedly called attention, is now being brought out as a rarity and highly appreciated in England. It is strange that such a very old plant should have been so long overlooked. It is a sort of house-leek, and has snow white flowers in large clusters. In America it flowers about Christmas time.

REST AND LABOR.—In the January Number of the *Penn Monthly* Dr. J. T. Rothrock, has an admirable article "on our weak ones." He shows that the prevalent recommendation of absolute rest, when people "feel bad" is a mistake. That even a step or two, or any little work is an advantage in cases of bad health. We are glad that this is the teaching of the highest thought in medical progress. A little greenhouse or even a few window plants may be the means of giving renewed strength in their case to "our weak ones."

THE PERSIAN CYCLAMEN.—In Mr. B. S. Williams' seed catalogue is a colored plate of a remarkably well grown cyclamen in which the flowers are two and a quarter inches long and two and a half wide. Can any of our cultivators do better than this?

STRIPED FLOWERED GERANIUMS.—Mr. Harris tells us that the striped flowers of "New Life" are liable to become plain, as in similar cases in dahlias and chrysanthemums. Any tendency to this should be checked by pruning out.

GERANIUM OIL.—This popular element in an apothecary's stock is made from the leaves of the Rose Geranium; or should be.

SCRAPS AND QUERIES.

CUT FLOWERS.—A correspondent inquires whether it is our advice that he "build houses for cut flowers," and asks: "will not the market become overstocked?" We cannot advise; but for the question of overstock, only say that the use of cut flowers in some form or another has existed co-equal with human history. As a business it will probably be like all others, have its times when there are too many growers for buyers, and times when the growers are too few. This is a mere business venture which every fellow must decide for himself.

NAME OF PLANT.—Clara M., Paducah, Ky. The plant is *Euphorbia jacquiniæflora*, or as it is sometimes in catalogue *Euphorbia splendens*. It is a very desirable winter flowering, warm greenhouse plant.

VARIETIES OF THE MYRSIPHYLLUM.—"Subscriber," Frankford, Pa., writes: "It is claimed by a large and reliable florist that there is but one kind of smilax in cultivation, that any variation in size of leaf, &c., is owing entirely to treatment. Two other florists claim to have two varieties, and one, three, viz: five leaf, medium, and extra large, all under same treatment. Can you settle this point in the next number of the MONTHLY?"

[The so-called "smilax" of the florists is usually raised from seed, and all plants have a natural tendency to variation. There is no reason why there may not be varieties of these, under this law, but we do not know of any recognized distinct form in the trade.—ED. G. M.]

CARNATION WAVERLEY.—We have some blooms of a seedling named as above, and which is a shade darker, more on the crimson than the "La Purite." If it should prove as good a grower and free a bloomer as that popular variety, we see no reason why it should not become a favorite winter-blooming kind.

CAMELLIA PIT.—M. J. M., Louisville, Ky., asks: "Is there any objection to a large light pit for camellias and azelias, if properly warmed in winter." To which we reply that there is no objection whatever. They will flower very well under such conditions.

COOL HOUSE ORCHIDS.—Mr. D. Barker, Norfolk, Va., writes: "By this day's mail I send you specimens of two flowers, from the beautiful

Lælia autumnalis, grown and flowered in an ordinary greenhouse, the night temperature of which is often down to 40° F., some of them, (the white one in particular), have been in flower near seven weeks. These beautiful cool house orchids will one day become the most popular of greenhouse plants."

[With these delightfully sweet and lovely flowers was also a bloom of an *Oncidium*. We go further than Mr. Barker, and believe that orchids will ere long become popular window plants. Numbers can be kept in rooms all winter, and be hung under trees in the open air and flower freely in summer, as we saw with *Cattleya Mossæ*, and three kinds of *Stanhopea* last Summer.—ED. G. M.]

WHALE OIL SOAP.—Mr. G. B., Yonkers, N. Y., asks: "Would the editor of the GARDNER'S MONTHLY please inform me in the next number of the MONTHLY, the quantity of whale oil soap to put to a gallon of water, to kill insects on rose bushes in the garden, and when to begin to apply it?"

[A table spoonful should be sufficient in most cases, but the general practice is to watch the effect, beginning lightly, and increasing the dose as it may seem not injurious.—ED. G. M.]

GREENHOUSE PLANTS.—J. B. Cedar Falls, Iowa, writes: "I have two ivies standing among my roses in greenhouse, and I have been in the

habit of occasionally watering them with soap-suds, as it is good for roses. But this Fall the leaves on the ivies have turned yellow. Is it the suds or something else? Would suds injure camellias, azaleas or any other plants kept in an ordinary greenhouse? What peculiar treatment does *Fuchsia racemosa* require? I cannot succeed with it. I have heard it pronounced a humbug by some florists. If it is so, our Eastern florists do wrong to send it out without warning. If these questions are not troublesome perhaps I may ask more at some future time. Is there any way to propagate *farfugium* besides dividing roots?"

[The ivy may be suffering from the scale insect, or from defective drainage, or it would not object to anything a rose delights in. It is impossible to tell how far soap-suds will injure camellias or azaleas. No plant objects to a light dose of it, but there may be too much of a good thing even here. *Fuchsia racemosa* is inclined to be a straggling grower, and would be a capital subject for horticultural skill in making it look nice and bushy. Whether anything is a humbug or not, very often depends on the treatment it receives. Florists generally get all the *Farfugium grande* they require, from root propagation, but if desirable to increase faster, no doubt the seeds would grow. We are always glad to reply to questions as far as we are able.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

When we read the many treatises on fruit tree culture, we are apt to be bewildered by what seems to be the contrariety of opinions; but it very often happens that these differences often harmonize, if only people would look a little deeper into reasons than they do. Now in regard to pruning, whether of roots or branches, there is generally an immediate advantage to be gained, and it is therefore well to prune, but on the other hand it is equally true that in a greater or less degree, pruning of roots or branches is an injury

more or less to the vital constitution of the tree. So what we gain one way is at the expense of another point. Sometimes the loss to vital power is so slight, that we gain the other advantage cheaply; but then again we often pay dear for it. No books or lecturer can teach one just what to do. The decision must be applied to such a case. This is the true dominion of practical fruit culture. So in our treatment of fruit trees, their vital powers are often weakened by the necessities of our practical treatment; but instead of looking to the real cause of our trouble we wonder if the "variety is hardy," whether the "climate has changed," whether we have "ap-

plied the right fertilizer," or some other outside operation has just fitted right. It is well to remember that when a fruit tree has its vital power weakened and the necessities of culture results in this, the tree is much more liable to disease, than when it is as healthy as a wildling in a place where the art of the fruit grower has never been called into play. This is particularly true of discussions about manures for fruit trees. When they have not been weakened in their vital powers by injudicious root pruning, they thrive on the grossest manures, but when severe root pruning has reduced them to weak tender bodies, we have to manure with great caution, or there will be late growths which suffer in bad winter weather.

In planting fruit trees aim to have them so that the hot dry sun will not have full effect on the ground about the roots. The great heat in this way injures the trees. Many who have trees in gardens plant raspberries under them. The partial shade seems to be good for the raspberries, and helps the trees. Blackberries would no doubt do well in the same situation; and strawberries it is well known do not do badly, grown in the same way.

Whitewashing the stems of orchard trees has a very beneficial effect in clearing away old bark and destroying the eggs of innumerable insects. The white color is bad; throw in a little soot or some other matter to make it brown. In greenhouses sulphur has been found of benefit in keeping down mildew. Possibly if mixed with the whitewash in tree dressing, it might do good against fire blight, and such like fungoid troubles.

In fruit growing remember that fruits are like grain and vegetable crops, in this, that they must have manure to keep up fertility. Unlike vegetables and grain however, their feeding roots are mostly at the surface. It is best, therefore, annually to top-dress fruit trees. If manure cannot be had, any fresh earth from ditches or road sides, spread half an inch or so under the trees, will have a wonderful effect. Indeed, we do not know but that for the pear tree a thin layer of road sand is one of the best of manures. We have seen apples thrive amazingly with a coating of coal ashes.

Whatever may be said of birds and their evils when the fruit is ripe, there can be but one opinion about their value *now*. They have nothing but insects to live on, and they eat them by the millions. Insects are a far greater scourge to the fruit grower than birds,—it will be wise to

encourage them. We see the English sparrow is getting naturalized in various parts of the country. We expect to hear in time great complaints from its graminivorous propensities; but this can be better guarded against than the attacks of insects. As Professor Riley says it is easy to shoot them when they become a nuisance, and we can make them pay for powder and shot, as they are usually nice and fat, and are as great a luxury as the famous reed-bird.

Deep rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too deep or too rich, if we would have good vegetables. It is indeed remarkable, that in many respects we have to go very differently to work to get good fruits, than we have to perfect vegetables. While, for instance, we have to get sunlight to give the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So also as we keep the roots as near the surface as we can in order to favor the woody tissue in trees, we like to let them go deep in vegetables because this favors succulence.

It is best not to sow tender vegetables too soon, they get checked, and the last will be first. Asparagus is one of the earliest crops to set out. It was at one time believed that the varieties of this would not come true from seed, and that there was but one best kind. We are not so sure of this now. Many plant them too deep and fail; four inches is enough, rows 20 inches, and plants one foot apart will do. Make the soil particularly rich.

COMMUNICATIONS.

THE DEWBERRY.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

I see the dewberry is coming into line, among our small fruits in the garden. It has long since held that deserved place in the grounds of N. H. Lindsley, a venerable nurseryman and inventor of Bridgeport. He has two kinds transplanted from their wild homes near by. Neither are very large bushes, though one is quite the better fruiter and a dwarf. They are loaded with fruit every year; that on the dwarf is large and rather higher quality. They do not grow as I have usually seen them in their native homes, but more largely and with a wider spread. My venerable friend says if he could gather all that would grow on an acre, of such berries, the measure would astonish.

It is often called billberry here. But his trouble is the same, so noted and lamented by your contributors. The birds know they are good, and are bound to get their share. They will hardly let enough ripen to supply his table. He has never tried any bird scare that I know of; but the small bush, he one year covered with gauze, and thus shut off his feathered visitors, and saved his berries. This would be rather expensive on any more than a small family supply. But doubtless, if as largely planted as some other fruits, the birds would hardly eat enough to do much hurt. If so, the birds are good to eat, and we should go for them.

Now, how is my friend to propagate such a bush? I thought he ought to know, but he did not. Yet he is an experienced propagator. Can the MONTHLY or any body tell us the way? Of course there is the way by the seed open for all. But I fancy it would be a slow process to stock a field or nursery with its seedlings. They would most likely come true to kind, and lend us hope of a gain of some better berry. And this leads me to ask why more thorough and systematic effort has not been made after better varieties of our native small fruits, through selection of the best and planting their seeds, and so on till a high excellence and size was reached? I may write in ignorance, because I have not posted myself, but has there been for one native raspberry, blackberry, dewberry, whortleberry, and creeping blackberry, any thorough attempt to improve on the best of each by their seedlings? Have not all, or the most of our American fruits owed their advance to chance rather than well thought mating of varieties and planting of seeds? The strawberry and the grape, have won in this regard marked trials and grand success. Is not like effort deserved in behalf of all small fruits?

Let no one forget, what Van Mons and Knight did for pears, what may yet be done for apples, and by close following well proved rules of breeding new varieties, what wonderful development may yet glorify the growing things that minister to men's comfort? But, even before we reach out for great improvement through mating and seeding, should not the field for chance varieties of excellence be well reached over? Full many of the small fruits developed into higher grades without the help of man, are to be found I doubt not, by the way-sides and foot-paths, in out of-the-way corners. I well remember, on the march from Gettysburg in

that timid halting pursuit of Lee, that through the unmown fields of Virginia, across which we tramped for shorter routes, the boys could hardly be kept in the ranks, they so craved the big trailing blackberries then in their prime; those large luscious, melting berries crowded our trail on every side. They were greatly larger and better than any high bush berry I ever saw; or else hard tack and pork, had brought a joy and relish to anything appetizing. I should think many of them were an inch and a-half in length, and three-fourths of an inch in largest width. Are these tender farther North? Have they ever been tried? How would a cross of this, and of a fine Lawton or Kittatiny do? Are these species too remote and unlike to make promising hybrids? Now this wayside, local, trailing blackberry, I cite but as one among fine fruits hidden that ought to be revealed. I doubt not that through their whole range, like neglected excellence can be found in each, awaiting some neighborhood horticultural society to bring out. Brethern attend! Let's take counsel about these things.

ANTS IN FLORIDA.

BY C. E., PHILADELPHIA.

In the December number of the MONTHLY I notice the article "advantages and disadvantages of Florida." As the writer wishes to know some method to get rid of the pests as he calls the ants, and I think I can suggest some, I do not hesitate to give my experience.

Having been engaged for some time in garden work in South America, about the same climate as Florida, where ants are to the cultivator of the soil the greatest foe, I will describe below the way in which gardens are kept clear of them. All small farms or gardens are divided into squares by ditches about two feet deep, in low places. Water is kept constantly in them to prevent the ants colonizing from other places. If a nest of them is discovered a large kettle is placed near the nest with water, under which a fire is built; as soon as the water is boiling the work of destruction begins by pouring the hot water on the nest and earth; water and ants are worked and mixed about the same way as mortar is made, only quicker. This mixture when dry will be as hard as stone; care should be taken so that few ants can escape, for they will make new colonies and the work will have to be done over again. If, however, the nest is under a tree, or as I often have found, under a house, the method is different

In the first place after the nest is discovered, all the holes but one are stopped up, in which a machine something like our smoking machines for greenhouses with a pipe attached to one side, and a bellows on the other is inserted. On the pipe end some sulphur and rags are placed in the machine, which is kept burning by working the bellows, the smoke of the sulphur entering the nest and destroying ants and eggs together. In a few days the escaping ants will make new nests, mostly in the open field which are easily destroyed. As a general rule the industrious gardener will have them soon under control and will only have to keep an eye on those coming over from his neighbors.

Very few people have an idea how destructive these insects are; as they mostly work at night the damage is only discovered when too late. I have known them to clear trees of their leaves in one night, if nothing would suit them underneath. They are very fond of cabbage and all plants belonging to that family.

JUNE BUDDING PEACH TREES.

BY CHARLES BLACK, HIGHTSTOWN, N. J.

Allow me to correct your answer to W. K. S. in regard to June budding. The mode practiced by nurserymen is to cut the buds from the young growth made the same season prior to the time of budding, say from the first to the twentieth of June. They can be used quite young and succulent. The seed is planted as early as possible in Spring and plants are budded as soon in June as possible, from four to six inches above the ground. The buds inserted same as in common budding, and tied with cotton twine instead of mat as in common budding. There are many details about it. If W. K. S. wishes to know fully about it I will give him full particulars by sending him a small tree with the operation all performed, which will give him a much more perfect idea than I can do with my pen.

PRICKLY COMFREY.

BY MR. J. GRIEVES, PATERSON, N. J.

I herewith send you a few roots of the genuine prickly comfrey which I imported a few weeks ago, with a few remarks of what I know about it as a forage plant in England, where I have seen it grown and used for several seasons while visiting in the Fall for my health. I cannot tell you to a nicety just how much it will produce per acre, nor can I tell you the yield of a solitary

plant. But I can tell you that I have seen the fattest and sleekest cows and horses that it has ever been my lot to witness, regaled from the smallest patch of land that it is possible to conceive capable of sustaining the same number of head in the worst possible condition, if at all. I hesitate to make the statement of the number of times it can be cut and the immense yield it will give. But I will only say if it will grow in this climate anything like it does near Epping Forest, then it will prove a most valuable acquisition to those living near large cities where land is high. Should you wish the result of my observations in England for the past three or four seasons, I will give you them, as they were what induced me to import it for our own use, and for introduction here. Of one thing I am very clear that it is not all valuable alike.

[There are few more intelligent or conscientious culturists in our country than Mr. Grieves, and what he may have to say on this very interesting topic will have a more than usual interest to our readers.—ED. G. M.]

EDITORIAL NOTES.

PEACH YELLOWS.—We have been favored with advance sheets of the Michigan Pomological Society's last meeting in which was a prolonged discussion on the Peach Yellows. An interesting letter from Mr. Byron D. Halsted, who has made minute fungi a close study, was read, in which he says: "The peach curl is caused by a fungus, *Ascomyces deformans*, but that this is the same species as the yellows I do not know." The "curl" fungus has nothing to do with the yellows, which, as already stated in our magazine, is caused by the mycelium of a species of *Agaricus*. It rarely develops into a perfect "toad-stool," though in the writer's carefully conducted experiments he has bred them. The spawn attacks health living roots and permeates the tree through all its parts, and the "filaments of some fungus" found in the wood by Mr. Halsted, were probably of this species. Budding therefore will communicate the disease. A knife used on a diseased tree may carry it, the fallen leaves of a diseased tree blowing under a healthy one will carry the threads into the soil, and the peach stones of a diseased tree may travel and carry the fungus a thousand miles. In an orchard where the diseased trees exist the

hoe-harrow spreads the disease very rapidly from the roots of one tree to the roots of another, and even where the soil is not disturbed much the spawn spreads under ground from tree to tree. If the members of the Michigan society had done what several years ago we recommended our readers to do, dig out a shovelfull of earth from around a tree afflicted with yellows, and put it in the ground around a tree that is perfectly healthy, they will soon see that the cause of the disease is as "clear as the noonday sun."

It would be a surprise to us that an experiment so reasonable should not be made long before this by those who are interested in the knowledge, did we not know from past experience that a large number of people in the world will talk for hours and write for weeks, rather than spend five minutes with their hands and eyes in experiment and observation.

BARTLE'S AMERICAN DEWBERRY.—A correspondent of the *Canadian Horticulturist* had abundance of flowers of this variety, but none perfected fruit.

THE DOWNING GOOSEBERRY.—In Canada the foreign varieties of gooseberry finding a cool summer soil usually do well, but the Downing, according to the *Canadian Horticulturist*, sometimes fails.

GRAFTING THE PEAR ON APPLE STOCKS.—Some attention is being given in the West to the value of the pear when grafted on apple stocks.

OHIO PEACH CROP.—The Cincinnati papers report generally "peach buds killed," and in some cases "peaches, plums and cherries killed."

RIPENING GRAPES IN THE SHADE.—In growing the foreign grapes under glass, the best growers shade the house a little when the fruit is ripening. The fruit is larger, sweeter and better colored for this attention. A correspondent of *Colman's Rural World* has been trying this practice with the native grape by enclosing the bunches in paper bags and finds great profit in it.

TOMATOES IN WINTER.—Mr. Paget, gardener to Senator Cameron, at Harrisburg, Pa., has wonderful success in forcing tomatoes. They are much better in average size and solidity to Summer produced open air fruit. They are as far superior to the best canned tomatoes as a ripe fruit is to a green one. It is a wonder that gentlemen of means have not more of these luxuries.

DANDELION SALAD.—In many seed catalogues we notice "Dandelion Seed" for sale. It is

quoted at wholesale at \$2.00 per pound. It is an admirable salad when blanched; a few boxes of it in a warm, rather dark cellar soon comes into use.

LETTUCE.—The nicest heads of lettuce often will go to seed and become unfit for the table. A German paper says you can avoid this unpleasantness by drawing your knife through one-half of the stem to which the head is attached. The sap, or as they call it in Germany, the milk, will flow and rob the head of the power to open, yet enough sap will remain to keep it fresh and growing for another week or so.

THE APPLE TREE BORER.—Mr. Edwin Satterthwaite reported at the Reading meeting of the Pennsylvania Fruit Growers' Society that he drew the earth around his trees in the Fall several inches high. The borer early deposited its eggs in the tree at the top of the little mound. The earth was removed in the Summer, and the places where the borer worked were more readily seen than when the insect was permitted to work in among the roots at the collar of the tree.

OLIVE OIL.—It is said that a large quantity of "Olive" oil is made from the seed of the sunflower, and from cotton seed. It is believed to be better for culinary purposes than genuine olive, but those who sell it for "olive" excuse themselves by saying the public will not buy it under any but a "foreign" name.

COLD GRAPERIES.—Since the advent of the California Grape in Eastern markets it seems to be taken for granted that it will not pay to force the foreign grape under glass. But this does not seem to apply to cold graperies, or the raising of the foreign grape under glass without fire heat. At the recent fruit growers' meeting at Reading, Pa., it was no surprise to learn that good house raised grapes would readily bring fifty cents per pound when the California product was a drag at twenty-five cents, on account of superior quality; and it was reported of one in the business that he had made good profits at less than fifty cents per pound. At any rate, as a cheap luxury, independently of any market profits, many a person might have a cheap cold graperies. There is very little cost to good results.

SCRAPS AND QUERIES.

THE WATER APPLE.—A Bucks County, Pa., correspondent says: "The Water Apple is the best apple to plant in low frosty places. I have

never seen them injured by frost. Freezing has done more damage in our neighborhood than most people are aware of." [To which we would add, that it is a kind which bears freely on young trees, and makes a very beautiful growth, points which will make it a greater favorite than the present popular Pennsylvania, "Smith's Cider" Apple.—Ed. G. M.]

DESTRUCTION OF PEACH BUDS.—J. A. McK., Cynthiana, Ky., says: "Observation for twenty-five years leads me to believe that 12° below zero of still air kills all the peach buds; that 18° injures young trees in a low situation, and 22° kills all peach trees. Am I right, or will buds and trees, under favorable circumstances, resist greater cold? I wish at your leisure you would give us through our monthly "visitor and friend," what is definitely known on this subject, also about what degree of cold kills flower and fruit buds of other plants in common cultivation over the country."

[The degree of cold, by itself, has nothing to do with the destruction of trees or buds. A tree will retain its heat, which is its life, under a very low temperature sometimes, and yet die at others under a higher one. For instance the Eucalyptus globulus has been known to endure a temperature of 12° to 15° below freezing point in England without injury, while in any of the Northern States of the American Union it is killed "dead at once" by a single degree of frost. So of many other things.—Ed. G. M.]

THE YELLOWS IN THE WEST.—Baird & Tuttle, Bloomington, Ill., write: "Referring to

the note in the January MONTHLY in regard to yellows in the peach tree, we would ask is not the disease confined to orchards from Eastern grown trees? Do peach orchards that are planted with trees which are raised in the West from Western seedling peaches suffer from the yellows? From our observation and experience we will say Western grown seedling peaches are free from this disease. We would like to hear from parties who have experience on the subject."

PEACH BUDDING.—J. A. McK., Cynthiana, Ky., asks: "Will some of our experts tell me just the modern mode of budding. How it is that one can bud, with a tyer, anything like five thousand peaches in a single day? We can bud on possibly two thousand, but when another can do five times as much, I beg that he will tell me all the particulars, as well as it can be done on paper, just how he gets down to his work. How he holds his knife, his buds, &c.; and altogether just how he proceeds to operate with such rapidity; what knife is used; what is the best substance for ties; just how applied; also treatment of the buds afterwards; whether ties are ever removed; whether buds are protected in Winter, and how; at what time relative to the swelling of the buds to cut of the stock; and whether it is necessary to cut more than once?"

DOYENNE BOUSSOCK PEAR.—A correspondent from Pleasant valley, Bucks Co., writes: "Doyenne Boussock I think is the hardest pear I have."

FORESTRY.

COMMUNICATIONS.

THE TWO CATALPAS.—A MEMOIR OF THE SHAVANON.

BY DR. JOHN A. WARDER.

(Intended for the Pennsylvania Fruit Growers' Society, but received too late for reading.)

Having some years since been complimented by the vote of your excellent society with the privileges of honorary membership, and holding also perhaps a birth-right membership in every good undertaking in the dear old State of

Pennsylvania, your fellow comes before you in this way as some compensation for the inability to enjoy a personal intercourse with his good friends of the Pennsylvania Fruit Growers' Society.

Like ourselves in the State of Ohio, so you in the parent State have advanced, in practice if not in name, from a pomological society to one which considers other and more general topics related to horticulture. Thus the functions of your committee are to look after the trees, arboriculture or sylvæculture, and it is to be supposed

that your attention will not be confined exclusively to those trees which yield orchard fruits, but may embrace also those which are simply ornamental, with foliage and flowers, or those which have their claims upon our respect founded upon their many values as the source of our timber supplies.

It is with trees that present themselves as candidates for our favor in both these latter categories, that your attention is now solicited. You are asked to consider a tree that has long been familiar to you on account of its showy inflorescence, and of another very nearly allied to it which has still more showy flowers and a superior habit, making a more beautiful object in the lawn or on the avenue, and also constituting a more noble tree in the forest and providing a most valuable material as lumber, which, like that of its congener, with which you are familiar, is of a more durable character. Besides being light, sufficiently strong, and also of great beauty for joinery, cabinetware, furniture, and inside finish of your houses, it is equally enduring, perhaps more so.

You may already have guessed that the tree to be introduced will be the *Catalpa bignonioides*, which will be alluded to more particularly in its Western form, described and named in 1853 as the variety *speciosa*, on account of its very showy inflorescence. This may not be so familiar to my Eastern friends, who will now be so good as to allow it the honor of a formal presentation and of a brief audience.

We have two catalpas, both native, an Eastern and a Western form. Our Western tree has a wide habitat, stretching, according to Michaux and Nuttall, (neither of whom, however, seem ever to have differentiated it as our Western tree planters have learned to do), from Vincennes, Indiana, to southern Illinois; the western low lands of Kentucky and Tennessee, to the swampy lands of south-eastern Missouri and the adjoining region of Arkansas, and on most of the lower tributaries of the Mississippi. This tree was accidentally or purposely introduced into Ohio, and into at least two different and widely separated localities. At first it was only known as the catalpa, and meanwhile the Eastern or the normal, the specific form, had been widely distributed by the nurserymen and others all along either side of the 40th parallel until it had transcended the father of waters. Here both trees were planted together, and here it was that the superior hardiness of our Western tree was

first observed and made public by Suel. Foster, of Muscatine, Iowa, on whose grounds the crucial test of such a Winter as that of 1855 and 1856 was made, with the escape of the *speciosa* and the destruction of the species. The *speciosa* has stood for years on the high exposed bluffs of the Missouri at Omaha, Nebraska, and has been planted at various places on the open plains of that State where the species is apt to be killed more or less every Winter.

In a few words the differentiation or diagnosis of the variety may be presented to you. Possibly this newly appreciated tree may already have found its way among you, though trees like men, are apt to follow the star of the empire in another and opposite direction. Newly appreciated is the word, but it was most highly appreciated in the early part of the century by the French settlers on the Wabash, and long before them by the Indians who utilized it as the favorite material for the construction of their canoes, some of which were clear three feet wide between the gunwales and proportionally long, perhaps thirty to forty feet. The observant Gen. Harrison, afterwards President, when acting as governor of the North-west Territory, fully appreciated the Shavanon Tree of the Indians and used it. Some posts of his planting were in good condition when removed after having done service in a fence during forty years. Some of them were re-set in another fence, and others which have been chopped off for kindling, are said to have their stumps still sound in the soil of the river bottoms subject to overflow; though since they were planted large trees have sprung up beside them having a diameter of three feet.

Near the old gubernatorial mansion at Vincennes are catalpa trees probably of Harrison's own planting, one of which recently measured is three feet in diameter, with a tall, erect stem bearing its top branches fifty feet above the ground, and having branch-width of equal breadth. This is called the Treaty Tree, under which he may have cemented the compact with Te-cum-the, which has been followed by the peace and prosperity of a wide extent of country, now the great States of Indiana and Illinois. The verification of this is left to the historians.

Though a great admirer of this tree, the governor knew it only as the catalpa, without botanically observing it, and so it was reported to Mr. Nuttall, who, in his *Genera*, pp. 10, on the governor's authority, gives this region "an indubitable habitat," for up to 1830 that distinguished

botanist and extensive traveler had never seen the tree in a state of nature, as he tells us he then did "on the banks of the Chattahoochee, near Columbus, Georgia." *Sylva Americana*.

On leaving his office, Governor Harrison brought the Catalpa with him to his farm at North Bend, on part of which this memoir is now being written. The tree has been spread about the neighborhood, and has become already naturalized, though on a very different soil from that of its native habitat. Some of the trees have been cut, dressed and planted as gate posts. Though taken at midsummer, July 2d, full of sap, and immediately planted (1852), they are to-day firm and sound.

But to the differentiation. Supposing you familiar with the species, it may be said of the variety *speciosa* that the tree is taller, straighter, less branched, more symmetrical, more hardy than the species. The bark, snug, compact, moderately furrowed, and not disposed to flake off as it does in the species. The flowers, more abundant, larger, of a purer white. The fruit, usually longer sometimes, but not often exceeding two feet; larger and generally distinctly grained the entire length, cylindrical and not elliptical on a cross-section like the species. The seeds present the surest and safest distinguishing mark of all these, as the coma is spread and less pointed, the tissue soft and silky, and they are larger.

My dear sir, and gentlemen, hoping that all this may not be considered the vamping of an enthusiast but, as it is the earnest effort to advance the noble study of our arboreal treasures and the contribution of one deeply interested in sylviculture, he remains yours in the sentiment *e sylvis ad sylvas nuncio*.

EDITORIAL NOTES.

TREES BY MAIL.—As a usual thing the farther one is away from railroad and express offices the greater will be the necessity for experimenting with trees, because these neighborhoods have seldom any kind of novelties to afford any practical test, as older settled places do. For these the mail offers good facilities for making forestry experiments on a small scale. Most nurserymen now send trees in this way, in the shape of one or two year old seedlings. Twenty, fifty, or even

one-hundred of these small trees can often be sent within a four pound package, which is the legal limit. We are moved to these remarks by a list of Robert Douglas & Sons now before us, a firm that has done much to further American forestry interests.

TREATMENT OF CATALPA SEEDLINGS.—Some years ago we noted that the proper way to grow catalpa was to cut it back the first and second year from seed, leaving only one shoot to grow up for a stem each year. The "tender" catalpa, treated in this way we have no doubt would be "hardy" even in Minnesota. Professor Burril of the Illinois Industrial University has grown some in this way. The average height of the trees is now sixteen feet, and they are as straight as it is possible for trees to be.

SOMETHING DONE AT LAST.—The public prints have been very urgent that something should be done to preserve or encourage forest planting. In Pennsylvania, Governor Hartranft was urged to recommend to the legislature that something should be done. The governor with that good sense for which he has been, of all Pennsylvania's governors especially favored, inquired what he should recommend? To this he never could get any other answer than that something should be done. So, tired of this urging, in one of his addresses he did recommend that something should be done. So the governor's recommendation was turned over to the House Committee on Agriculture, which has now decided that forestry in Pennsylvania must be encouraged, and that something shall be done. So the committee has reported a bill which is at this writing before the House for consideration, that "any person who plants four shade trees along the public highways, is to have one dollar bounty given to him, payable out of the highway taxes." The highways of Pennsylvania are in a large number of cases nuisances during Winter and early Spring, and it is hard to understand how such a law is to add to the improvement of the road-beds. But the stealing of the money that should be spent on the road-bed in order to encourage forestry, and to the extent of planting four trees for a dollar is a new version of "robbing Peter to pay Paul;" but it will probably satisfy those who have been so afraid that Pennsylvania is soon to become an arid waste that "something has been done."

EARLY HISTORY OF THE CATALPA.—So many have expressed an interest in Mr. Price's "Early

History of the Catalpa," that we have been encouraged to inquire further into the history of some very large trees about Philadelphia. We have never felt any reason to doubt that the tree is to a certain extent indigenous; that is to say has wandered by natural means and not by the hand of man into Pennsylvania, and that it has been in the State for countless years. Originally no doubt it was a wanderer from Japan. It seems to love alluvial soils, and we have scarcely a right to expect to find it far away from river courses. At any rate whether it is actually indigenous to Pennsylvania or not, we can trace the history of some trees further back than Mr. Price places it. Dr. Lamborn—now in Europe, or we would get further particulars—some years ago told the writer of an old catalpa gate post, about fifty years in the ground. That tree must have been a very old tree when cut down sixty years or more ago. Of living trees there is one on the old battle-field of Germantown not far from the celebrated "Chew's House," which was at that celebrated battle of the Revolution an old tree. One of the family kindly measured it for us recently, and found it at sixteen inches from the ground thirteen feet in circumference. This enormous tree was certainly not planted by any of the Chew family, and yet the property, purchased from Mr. Edward Pennington, has been in the possession of this family since 1763. Very old people now living know of this as being a very large tree as far back in childhood as they can recollect.

Another huge tree is on the Johnson property not far from the Chew estate. We are indebted to Mr. Norton Johnson for a recent measurement. He finds it fifteen feet six inches round, eighteen inches from the ground. The place where it grows was a piece of forest at the Battle of Germantown, in 1777, and Mr. Johnson has no reason for believing it was not a part of this original forest. At any rate it was there when his father purchased the property in 1795, and it was a large tree beyond his own recollection, extending clearly beyond fifty years.

SCRAPS AND QUERIES.

KENTUCKY COFFEE TREE TIMBER.—A correspondent interested in the forestry question, is desirous of knowing what uses the timber of this tree has been put to, and what are the circumstances under which it seems durable. Any facts

from actual experience will be valuable and welcome to us.

RED AND WHITE PINES OF UTAH.—Mr. Siler tells us that the *Abies Douglasii* bears the same common name of "Red Pine" as it does in Colorado. *Abies Engelmanni* from the high mountain tops, is the "White Pine" of Utah.

LARCH TIMBER.—A Massachusetts correspondent says: "I think that the burden of proof about the quality of New England larch timber is with you. If this tree does not produce here valuable timber the fact ought to be known, so that people may not go on planting it. On what is your opinion based? Is not your idea of this timber rather got from Pennsylvania or Western grown specimens than from those grown here where all the conditions for the development of this tree are better than in your warmer climate and richer soil? This seems too important a subject to pass by without some further remark. Yes, there is much Essex County soil which is too poor but it produces our best fruit trees, even White Pine won't grow on much of it."

[It is precisely because we thought that "if the larch does not produce valuable timber, the fact ought to be known," that we made the suggestion. Our hint was offered chiefly from the fact that at almost any meetings of nurserymen of wide experience the under-current conversation is against the great value of the larch, as compared with the wonderful accounts of its durability we find in European books and forestry. Little has certainly been said publicly against it, but it is clearly the duty of the journalist to give the news of the day when it is likely to have a wide-spread importance, wherever he may find it.

Outside of this under-current, there are physiological reasons, in the wide-spread injury to the leaves by fungoid attacks as already noted, which must affect the quality of the timber, and this fact alone should at least induce caution in selecting it for large investments. And this is rather more than a physiological deduction, for those who have kept the run of periodical literature know that this leaf disease prevails extensively in Scotch forests, and that where it prevails the timber is considered inferior to the best; and it is also well known that in Scotland where the larch has been tried to a greater extent than perhaps anywhere, it is not nearly as popular for planting as it once was. This is all the "proof" we have for advising caution in its use. It may be worth a great deal more than we are inclined

to believe it is. It would give us great pleasure to record all the facts derived from American experience of its use that may be sent to us. This is particularly the line of study we desire to encourage. We have had entirely too much

of European experience applied to American forestry. We are about to enter on an era of great moment in connection with American forest planting, and the great want of the times accordingly is American forest experience.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE ROSE BUG.

BY PETER HENDERSON, JERSEY CITY HEIGHTS, NEW JERSEY.

In the plain, practical and excellent essay of Mr. Bennett on "Rose Growing in Winter," among the "Causes of Failure" which he gives, he fails to make any mention of the rose bug, probably for the reason that he has so far in his operations been exempt from it, or has overlooked it.

It is a well-known fact that probably not one gardener out of ten, whether florist or private gardener, who attempts to cultivate roses for their flower-beds during the Winter months have complete success; and I am led to believe from a pretty thorough investigation of the subject, by a correspondence with some of the best growers in six different States, and from what personal observations I have been able to make in a number of places where roses are grown in the vicinity of New York, that in a large majority of cases failure is traceable alone to the ravages of this insect. Its operations are so insidious that it may be sapping the life-blood from your plants year after year, and if you are ignorant of its existence, you can hardly be blamed for not knowing what is doing the mischief. The perfect insect, as shown by engraving Fig. 1, is of a greyish stone color; it seems destitute of wings, at least I have never seen it fly, yet it is rapid in its movements when creeping on the stems or under the leaves of plants. The presence of the insect in this stage is not easily discerned, as it almost invariably shuns the light by getting under the leaves. They are usually



Fig. 1.

found at the highest points of the plants and usually in pairs, they can often best be noticed by the leaves showing where they have eaten them, but the injury to the leaves is trifling, the great havoc being by the grub, maggot, or larvæ stage of the insect. How long they continue in the full developed stage we do not know, but observations show that after a time they crawl down the stem and deposit their eggs in the soil in which the plants are growing. When hatched they are of a bluish gray, and begin at once to feed on the roots of the plants, gradually growing larger and changing to almost a clear white, and of the size and shape as shown by Fig. 2.



Fig. 2.

Mr. John May, the gardener in charge of Mr. Slaughter's rose growing establishment at Madison, N. J., which is probably the largest in the vicinity of New York, has given great attention to the rose bug, his roses for four or five years being much injured by it; but by persistent efforts in destroying the perfect insect, has now got entirely clear of it, so that his roses are now perfect models of health and vigor. He says that he is "convinced that no substance will destroy the insect in the larvæ state without at the same time injuring the plant." This has been the experience of all that we have heard of who have tried any such remedies, and the only advice that is given when there is indications that the plant is affected at the roots is to dig it up at once, or if grown in a pot throw it out, for you may just as well hope for health in a patient in the last stages of pulmonary consumption as to expect health from a plant with the rose grub feeding on its roots. The symptoms of the grub being at the roots are a partial stagnation of growth, weak pale shoots, and generally barren

of flower buds. If these symptoms show in anything like a marked degree, if the plant is dug up and shaken, the insects in less or more numbers are almost certain to be found. The remedy is to carefully search for and destroy the perfect insect that is to be found under the leaves; these are by no means so numerous as the grubs, evidently showing that many of these in the larvæ stage die, or at least do not come to the surface. Complete destruction of the mature insect, which is easily accomplished by careful and persistent searching, is a certain remedy for the evil.

I am exceedingly glad to be able to state through the MONTHLY these important facts, for since the great desire for rose buds in the Winter months, hundreds of private gentlemen have put up greenhouses exclusively to have roses in Winter, and scores of florists have largely increased their areas of glass for the same purpose; and yet as I have said before that complete success has been far less common than failure, and scores of intelligent gardeners who may have failed in nothing else have been puzzled at their want of success in this, and in many instances have been discharged for such failures—failures that have been due to the ravages of this insidious enemy of which they know nothing.

An extensive florist from the interior of New York State sent me samples the other day of a grub that had been eating the roots of his geraniums, hibiscus and dracænas, which on examination proved to be identical with the rose bug maggot. Professor Riley, now entomologist in the Department of Agriculture at Washington, writes me that it was first sent to him some years ago by Mr. Andrew Fuller, now of Ridgewood, N. J., who had found it feeding on the roots of camellias. From the fact that his attention was first called to it by Mr. Fuller, Professor Riley has named it *Aramigus Fulleri*. Professor Riley has promised to send on a formal description of its class and general habits, which, when received, will be forwarded to you for publication.

Department of Agriculture, Washington, D.C.

MY DEAR SIR:—In accordance with promise I herewith send you such facts as I have in my possession regarding the snout-beetle that is so destructive to your roses. I regret exceedingly that absence during a recent trip to the West has prevented my doing so earlier. First, regarding the habits of the insect, I take it that no person

living can possibly have a better knowledge of them than yourself, for they have never yet been studied by entomologists. The first knowledge which I obtained of this insect was through our mutual friend Mr. A. S. Fuller, who sent me specimens in 1875, the species being then undescribed. In 1876 it was described under the name of *Aramigus Fulleri* by Dr. G. H. Horn, in the proceedings of the American Philosophical Society, vol. xv. page 94. Mr. Fuller had found it in greenhouses and somewhat injurious to camellias. It seems to be quite wide-spread, occurring from the Atlantic at least as far West as Montana, and its habit of injuriously affecting roses and other greenhouse plants, must be looked upon as a comparatively recent acquirement. Such instances of newly-formed habits are constantly presenting themselves to me in my studies of insects. The beetle seems to be purely American, and the genus *Aramigus* was in fact, erected for it and another species (*Aramigus tessellatus*) of about the same size but of a silvery white color, with faint green hue which I have found in Kansas upon the well known "resin weed." The beetle belongs to the same family and is pretty closely allied to a well-known European beetle (*Otiorynchus sulcatus*, Fabr.), which is larger and darker in color, and is also very injurious to greenhouse plants, as well as to some grown out of doors. This species also occurs in this country, as I have specimens that were taken in Massachusetts. It is the habit of all these beetles, so far as their habits are known, to work in the roots of plants while in the larva state, just as your *Aramigus* does. The eggs are doubtless laid upon the roots by the female beetle, which burrows into the ground for this purpose. Upon inquiry I find that what is evidently this same beetle has been more or less injurious to roses in and about Washington, and that Mr. A. Jardin was obliged to give up the growth of Tea Roses here, a number of years ago, on account of its injuries. I hope before long to have an opportunity of studying more closely into its habits, and into the best mode of preventing its injuries. When I have done so you will hear from me again. Until that time I shall be unable to make any suggestions of value.

I am, very truly yours, C. V. RILEY.

CARNIVOROUS PLANTS.

BY J. GREIVES, PATERSON, N. J.

Mr. Peter Henderson's account of his experiments in the December number of the

MONTHLY in trying to demonstrate the truth or falsity of Mr. Francis Darwin's conclusions, are briefly as follows: Mr. Darwin cultivated a number of Sundews, one form of insect-eating plants, feeding one-half with fibres of beef and not so feeding the rest, and when the plants were grown he counted and weighed the leaves and seeds, and also weighed the plants bodily, and in every case he found the advantage was on the side of the beef-fed plants. The leaves were more numerous, the flower stems taller and more vigorous, the flowers more numerous, the seeds more numerous—in every respect demonstrating that these plants did derive nourishment from this animal food. Now these are the facts as given on one side, which of course may be questioned by other careful investigators. Now let us examine closely the character of the plants experimented upon, and in them we may find more difference than in the character of the food or the care of the investigators, who are doubtless both correct in their facts.

It will be noticed Mr. Darwin experimented on Sundews, the common name of a species of *Drosera*, from *droceros*, dewy. These are an order of delicate herbaceous marsh plants of the south of Europe and ranging up to the tropics. There are about forty species of *Drosera* found in boggy places all over the world, except in the extremes of heat and cold. The *Dionæa*, or Fly-trap, is also placed in this order by many botanists. The Sundews, as commonly called, are remarkable for their singular red colored glandular hairs, which discharge a viscid acrid fluid in which insects are caught. The British species of the order with which Mr. Darwin doubtless experimented are all noted for this peculiarity, especially the variety often found near London and elsewhere, *Drosera rotundifolia*, or round-leaved Sundew; this has the leaves close to the ground, nearly circular and spreading, with a roundish limb tapering into a hairy petiole. Its secretions are very acrid and caustic, and in Italy the liquor called *rossali* is distilled from its juices. It curdles milk, and is said cures corns and warts. Several of the foreign species have also the reputation of being poisonous, notably *D. communis* to sheep and cattle, while *D. lunata* has viscid leaves and glandular fringes which close upon insects happening to touch them, in this respect resembling *Dionæa muscipula*, but this is one of the exceptions in this class. While all are ornamented with red

glandular hairs, discharging from their ends a drop of viscid acrid juice, the *Drosera rotundifolia* when seen luxuriating on living sphagnum moss in a cool house resembles an emerald set with a thousand little rubies, the beauty apparently enticing the insects which often become entangled on alighting and die.

Now I think the object of this is not difficult to understand. All decaying animal matter gives off ammonia, and a portion of this is no doubt decomposed by the plant to furnish the nitrogen which the plant requires. But as only a certain amount of this can be utilized by the plant, and if this amount can be obtained from the soil or surrounding air, any excess provided to the plant in the way of insects or flesh, could give no appreciable effects. So that the question of conditions of soil, may become an important factor as well as the difference in the nature of the plants. The power of catching insects is undisputed, but the object of this power and the utility of it, is the question which the consideration of the next plant *Dionæa muscipula* may assist us somewhat in reaching. This is the plant Mr. Henderson tried the effects of feeding with flies and other insects for several months, and as the feeding did not "fatten" it completely failed to sustain or corroborate Mr. Darwin's test. This plant is said to be originally from South America, although now found plentifully in North Carolina. There is but one species of this order, *muscipula*, a fly-trap. Its leaves which are spread out on the soil near the roots are composed of two parts, the one elongated and terminated by two rounded plates or leaves, furnished with hairs on their outer edge. When touched these outer leaves close upon their victim and remain closed so long as the insect continues to struggle, but as soon as it is quiet the leaf opens and permits it to escape. These plates are also furnished with certain small glands in the upper surface whence exudes a viscid liquid. But this does not appear to assist in retaining the animal. The retaining power in this instance being in the irritability of the plant acting on the nervure at the base, which is fashioned like a hinge, as when the efforts of the insect to escape ceases, irritability ends and the plant returns the two trap like nets to their former position. Should the fly or insect however continue its efforts to escape, the plant will remain shut until exhaustion or death prevents further movements against the sides of these singularly irritable leaves, which greatly resem-

ble the sundews. The chief points of the difference in the *dionæa* and the sundews are its indehiscent fruit, and erect æstivation and placenta placed at the base of a one-celled capsule, coupled with the extreme irritability of the glandular hairs which reaches its maximum in *dionæa* in this genera, and somewhat resembles the *Mimosa sensitiva* in the strange sensibility of its leaf which closes its folioles when the obscurity of night sets in, or when touched by a fly or other insect, the slightest touch sufficing to make its folioles close upon their supports.

In the *Dionæa muscipula* we have the phenomena of irritability under the influence of action only, displayed in a remarkable degree, and although it may properly be classed a carnivorous plant also, yet I do not think it a fair test to apply this variety standing alone as it were, either at the end, head, or on the dividing line of a group, to a large class of plants apparently differently constituted. The latter having beautiful leaves of spongy, cellular tissue, furnished with countless viscid glandular hairs, to attract, entangle and hold fast until death, the insect in the viscid fluid and retain the same until it has become decomposed and digested by the leaf in precisely the same way as digestion is carried on in the human frame; only as in case of necessity with us, another way of administering it as claimed by some of Mr. Darwin's followers. As already stated, no doubt both parties are correct and I only offer these remarks in the hope of harmonizing different effects from probably different causes, and trust that the best representatives of the European carnivora have not been put in competition or contrast with the poorest of the same class, but the only representative here. I close with the suggestion to all investigators to make all conditions equal if possible, as it appears to me there is a reasonable doubt of this in the present case. Although I may be mistaken in my premises I submit matters as I view them.

EDITORIAL NOTES.

A PROBABLE NEW DARLINGTONIA.—Every one has heard of the very curious California Pitcher Plant, *Darlingtonia Californica*. The *California Horticulturist*, the January number of which by the way, comes to us as we anticipated wonderfully improved under Mr. Shinn's editorial management, gives a figure of a form

once thought to be distinct from the original species.

ABSORPTION OF WATER BY FOLIAGE.—Professor Henslow has proved by careful experiments, that where the supply of water from the roots is cut off, submerged branches can absorb moisture enough to supply those exposed to the atmosphere.

INSECTS AND COLORED FLOWERS.—Mr. I. Tully of Kent's Store, Virginia, writes to the *Popular Science Monthly*, that colored petunias are torn to pieces every day before noon by various honey seeking insects, while the white ones are untouched. He has noticed that the same occurs with other white flowering plants, though the white flowers had the advantage in fragrance; thus leaving the inference that in the day time insects are chiefly attracted by color.

DICENTRA OR DICLYTRA.—When "we were boys" we only knew of the *Diclytra*. Some twenty or thirty years ago, we were told that the original name was *Dicentra*, that *Diclytra* came in only as a typographical error. Professor Gray has now had the opportunity of examining the original name and it turns out to be not a typographical error, but that the legitimate name is really *Diclytra*; so we must change back to our old name.

CONOPHALLUS TITANUM.—The *Amorphophallus* is now well known as a large and very interesting aroid. Since its introduction a much larger one, *Godwinia gigas* was found in Central America, and was as large as it was thought possible to be. Now the announcement is made of another called *Conophallus Titanum* found in West Africa, that has a tuber five feet in circumference, the divided leaf forty-five feet in circumference, and the spadix, that is the part answering to the club-like center of the flower of the Indian Turnip or the common *Richardia* or "Calla" Lily, is six feet long. Certainly in size this *Arum* ought to anticipate no superior.

THE ENGLISH SPARROW IN WASHINGTON.—Professor C. V. Riley has written a letter to the Commissioners of the District of Columbia correcting some misapprehensions that have been circulated regarding his views of the English sparrow. He thinks the sparrows have been useful in ridding the shade trees of cities of the canker worm, but believes that they will become great pests in time to the farmer and fruit grower. He believes that the insects most

troublesome to the fruit grower, are not touched by this sparrow. It does not save the elm from being riddled by the *Galeruca*. He does not favor the exterminating of the bird, which as he well remarked is now impossible; but he would favor no special law for its protection, but let it take its own chances of earning the farmer's own smiles or frowns as the case may be, as other birds do. One thing is certain that those who do not want the bird on their premises, will have a good luxury in sparrow pies.

PICEA MACROCARPA.—This described as *Abies macrocarpa* by Dr. Vasey in our pages some time ago, is thus referred to by Mr. Lemmon in a recent number of the *Pacific Rural Press*:

"*Tsuga macrocarpa*, Torr., or *Tsuga Douglasii*, variety, *macrocarpa*, Vasey, the 'big-coned spruce' of the San Bernardino mountains. A rare tree, differing from the typical Douglas spruce in its smaller size, gnarly appearance and the great size and quantity of its cones, 8 to 11 inches long, and lying a foot deep beneath the trees."

SCRAPS AND QUERIES.

STRAWBERRY APHIDES.—If any one troubled with this insect will send a few fresh specimens to Mr. Jos. Monell, care of Mr. Henry Shaw, St. Louis, Mo., who is making a special study of this class of insects, he and the editor will be obliged.

HARDINESS OF THE PECAN HICKORY.—Mrs. S. H. W., Philadelphia: The pecan nut is quite hardy in Philadelphia, and possibly in most all of the Northern States. A very large tree on the grounds of Dr. Dunton, in Germantown, Phila., bears perfect nuts freely we believe every year.

PINUS TORREYANA.—A Pacific coast correspondent writes to us of the heavy weight of the cones of this pine, which grows in that region. He says that from curiosity he counted the number of seeds in a cone of average size and found there were one hundred and thirty of them. These seeds, like *Sabiniana*, and like the *Cembra* of Europe are very large and nut-like, their average size being about three-quarters of an inch in length. The one hundred and thirty seeds weighed a trifle over three ounces, and the empty cone seven and three-quarters, making a total weight of near eleven ounces.

Collectors and others who have seen this tree in its native wilds say of it that it is beautiful and symmetrical in its growth, of medium height, with leaves of a deep glaucous green.

HONEY DEW.—Mrs. M. R., Mt. Pleasant, Iowa, says: "I would like to enquire the cause of what I am told florists call 'honey dew,' a shiny substance, sticky, that comes on leaves; and the remedy."

[In many cases "honey dew" is simply the sweet excretions of aphides, or perhaps other plant lice. But there are some cases wherein it is clear no insects have had any agency in the matter, and these cases are supposed to be due to sweet exudations from the leaves themselves, just as sugar is formed in the sap of the sugar maple during the winter season. But just how the plant does it has not been made known that we are aware of.—ED. G. M.]

SELF-PROTECTION IN PLANTS.—Miss S. S. K., asks: "The question 'how are plants protected from animals and unfavorable weather?' was referred to me by a botanical class to which I belong. I suppose, of course, it means naturally and not artificially. Small plants are protected by snow and in the forests the fallen leaves serve to keep them warm, but how are the larger ones protected from the weather, and how are plants generally protected from animals? Can thee refer me to any botanical work which contains information on the subject? Would such things as thorns, the sting of the nettle, &c., &c., be considered as a protection to the plants?"

[Many plants get some protection from fallen leaves of taller trees. Others protect one another by growing together in forests or groups. The chief power of protection is by their own internal power to preserve an even temperature, their vital power—just as animals have a similar power, though, also as in animals, unusual external causes will induce them to part with that heat and die in consequence. The exact range of this life-preserving heat in plants has never been determined that we know of. Some plants part with their life-preserving heat on the first white frost, while others can keep their juices from freezing even when the temperature is far below zero, just as animals can. In regard to protection from animals, it is just possible that thorns and other contrivances may have some slight influence, but the spiny thistle is browsed on by the ass, and the pony kicks open the cactus on the desert for the liquid it contains. Most likely the great exuberance of nature which makes infinitely more vegetation than there is animal life to feed thereon, is the chief "protection" to the continuance of vegetable life in all its varied specific forms.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

THE NURSERIES OF MILLER & HAYES.

BY WALTER ELDER, PHILADELPHIA.

On a recent visit I was interested to notice how rapidly a wild piece of land may be made to blossom in beauty. Here which but a little over half a dozen years ago were nothing but corn fields, old apple trees and waste, now is a pretty little nursery, with numerous glass houses for rare exotic, choice bedding plants and cut flowers, comprising over 50,000 square feet of glass.

A special feature of these nurseries is the neat and tasteful arrangement of the front, which is in striking contrast with the neglected, not to say dirty appearance of the approaches to many nursery grounds; but the elegant appearance of the grounds of the Mount Airy Nurseries are only what one might expect from the eminence of one of the firm in the landscape gardening art. The out-door department is devoted to rare and ornamental trees in immense variety, amongst which may be especially noted the rhododendron which grow here without any more care than any nursery plant receives, and with a vigor and luxuriance far superior to what we find them in their native localities, and which show how far at sea are those who regard them as requiring extraordinary knowledge and skill for their successful culture. Altogether no one will fail to derive great enjoyment from a visit to these very pretty nurseries.

EDITORIAL NOTES.

PLANT PROTECTION.—We have a request to publish a series of articles on "Plant Patents," which we have to decline, because we have already given a great deal of space to the subject, and see nothing new in the proposed treatment now. Willing as we are to give the utmost freedom to our contributors in the use of our very limited space, we look on this project as sheer waste of type, and have inserted articles on it in the past, solely because we would not be regarded as unfair to those who differ from us. We admit and deplore the fact that those who

introduce new things are generally poorly paid. We are ready to advocate anything that would add to their rewards. We oppose the "patent" project, as our readers know, because it cannot possibly work as its advocates suppose, but it would make matters worse than they are now.

We gave Mr. Glen a full and free hearing because his proposition to patent names was new, though it seemed to us as impracticable as to patent the plants themselves. If any new suggestion be made we may publish it whether it commends itself to the editorial judgment or not.

LOW PRICES.—As we desire to keep our reading pages as free as our advertising columns, we give the following just as it was received:

"It is always a pleasure to receive and read your MONTHLY, and I for one would kindly aid in getting new subscribers and spreading its circulation. But I must plainly tell you it is with me, and others I know, quite the other way, for we never allow your paper to be seen or speak of it to any one. Our reasons are these: You seem to have a class of advertisers who are anxious to give their stuff away—and next thing to pay you if you will take it. Now this would be all very good if it were confined to nurserymen and from nurserymen to their patrons. We have many small nurseries in the land who would buy from your advertisers, say several hundred plants at \$6.00 per hundred, or thousand at \$50.00, to supply their customers, &c., but they find them already supplied from these very advertisers six, ten or twelve plants mailed free at 1000 rates. But Yankee and Yankee tricks go together; and while you have many honorable nursery firms, they are disgraced by cheap Jew tricksters, who stoop to anything and who are found in all papers as well as yours. There ought to be a line of discretion in all lines of business, and between and among nurserymen. This way of advertising so-called trade prices, sending indiscriminately cheap trade lists to everybody, and cheap printed postal cards and the like, is all wrong, they can all reach those in the trade by the commercial reports.

S., MEMPHIS, TENN."

[The main point of our correspondent's note is this: Is it a nurseryman's interest to aid the circulation of agricultural and horticultural papers

which admit advertisements of wholesale prices, surplus stock at low rates, and so forth? We think it is. The one who sells below cost cannot do so long; it is an evil that will cure itself in time. On the other hand the increase of horticultural or agricultural taste which agricultural or horticultural papers engender is for all time, and will make a healthy legitimate trade long after the poor fellow who sells below cost is crowded out. Of course reckless men who advertise to sell goods below cost are an injury to legitimate trade, but there is no way by which a publisher can know whether a man can afford to sell what he has at the price he offers; he has to take all advertisements that have an honest look. It only goes to show that there is nothing on earth—not even a horticultural or an agricultural paper—that is an unmixed good. But admitting the worst against agricultural papers in the line sketched by our correspondent, the question for the nurseryman narrows down to this: Is it to my advantage to have a person take little or no interest in agriculture or horticulture, suffer him to know nothing of what is going on in our world, and leave him where he certainly will buy nothing at all from us or anyone; or is it better to quicken his tastes, and make him an enthusiast in culture, though once in a while some of his orders may go to an unworthy source? The fact is that though the sales of honorable firms are certainly injured by a few reckless advertisers, their sales would be infinitely more restricted if there were no agricultural or horticultural papers at all. We trust our correspondent, therefore, will see that the advantages of a newspaper are very far beyond its defects and that it is really the permanent interest of every nurseryman to increase the circulation of agricultural and horticultural magazines.—ED. G. M.]

THE WORD MIGNONETTE.—A correspondent of the *Gardener's Chronicle* explains:

"Mignonette is an old-fashioned French term for ordinary pepper, ground a little more coarsely than usual, to be eaten with oysters, or to season ragoûts, and is not applied to any different species or substitute for pepper. 'Mignonette' means simply 'little favorite'; we apply it to the sweet smelling plant, which the French, with greater precision, call *Reseda*."

THE FAIRMOUNT PARK COMMISSION.—Hon. Alex. Henry has been appointed by the law judges of Philadelphia to the seat in the Board

of Fairmount Park Commissioners, made vacant by the death of Mr. Morton McMichael. Like Mr. McMichael, Mr. Henry has been Mayor of Philadelphia, and is one of Philadelphia's most honorable citizens.

It is a curious reflection on the way in which the poplar wheel revolves that Mr. Henry's political life terminated chiefly through his abortive attempts to prevent the mass of the people from riding to Fairmount Park in street-cars on Sundays, while no attempt was made to prevent the wealthier classes from hiring hacks or carriages to take them there; and that one of the first public positions he should be re-called to is in connection with the management of this same Fairmount Park.

MR. GEO. CRUIKSHANKS.—As we go to press we notice the death of this estimable Massachusetts horticulturist, which occurred on the 7th inst. Though not known much to the general public, in a quiet way few have done more to make horticulture popular with intelligent people in his part of the world.

F. R. ELLIOTT.—The recent death and burial in a pauper's grave at Cleveland, Ohio—a fate resultant from dissipated habits—should not prevent us from doing justice to the valuable services he rendered to horticulture in the earlier portion of his career. We have nothing at hand to inform us of his birth-place or parentage, but it was stated by Dr. Houghton in a speech complimentary to Mr. Elliott, before the American Pomological Society in Philadelphia many years since, and the statement apparently accepted by Mr. Elliott, that he was a decendent of the celebrated Elliot who more than two hundred years ago translated the Bible into the language of the Natick Indians; a wonderful work for that time. We can only commence with his early life, when with his brother, two young single men, they started business together in New York as importers of dry goods, in which they were remarkably successful, being at one time supposed to be worth about a quarter of a million of dollars apiece. They were burnt out, and through some misunderstanding with the insurance companies, obtained nothing and were financially ruined. About 1836 or '37 he left New York and removed to Newburg, where he became acquainted with A. J. Downing, by whom his very ready pencil found temporary employment, and from whom he imbibed an enthusiastic love for landscape gardening and horticulture generally. The un-

stability of his disposition, even at this early age, led him to sacrifice his prospects here, and he suddenly took his leave, and we find him soon after working with a relative at Walnut Hills near Cincinnati, as a market gardener, going himself with the garden products to Cincinnati market. How long he remained here we do not know, but probably but a year or so, for in 1843 we find him at Cleveland, assisting in editing the *Cleveland Herald*, a paper then struggling with about 1000 copies into its present high position among the daily press. Our next special knowledge of him was in St. Louis as one of the editors of the *Democrat* of that city, from whence a year or two afterwards he wandered to Washington where his pencil was employed by the agricultural department of the Patent office, and some of the most beautiful representations of American fruits that have ever appeared in government publications were the work of his hands. But his restless disposition drove him back to Cleveland, generally with some employment on the *Herald* which generously aided him in many an emergency. To the great public he was well known for many years as the Secretary of the American Pomological Society, till his growing social infirmities compelled a change. His usefulness lies buried from this time. He has injured many by the weaknesses of his later life, but even with this great weight against him it may be that the world owes him some balance for his having lived in it. At least we will leave this decision with his maker. We only wish to do him what justice may be fairly his.

MR. JOHN T. LOVETT.—This gentleman formerly connected with the nurseries of Asher Hance & Sons, of Red Bank, N. J., has taken an interest in the firm of E. P. Roe, Cornwall on the Hudson, N. Y.

INSTRUCTIVE CATALOGUES.—It is wonderful what an immense amount of intelligent information is distributed in catalogues now, over what was to be found in them a quarter of a century ago. This has particularly struck us in looking over the catalogue made by Mr. Grieves Secretary of the Greenbrook and Paterson nurseries of New Jersey. It is a complete dictionary of gardening as far as the plants of common cultivation are concerned. As a sample we take the following about a well known and curious plant:

"*Sarracenia*, named in honor of Dr. Sarrasin, a French physician. These are curious and inter-

esting plants, known as the side saddle-flower. They inhabit the bogs of this country. The leaves of all kinds are singularly formed into pitchers, which are lined inside with hairs, whose functions are but imperfectly understood. They grow well in pots partly filled with rough peat soil and the rest sphagnum moss, in a moderately cool, moist atmosphere. Natives of North America."

NOTES ON THE APHIDÆ OF THE UNITED STATES, BY CHAS. V. RILEY AND J. MONELL.—Published by the Department of the Interior. In this valuable contribution Prof. Riley makes known for the first time that the eggs of some of the gall making pemphiginae, the section of aphidian insects to which the phylloxera is closely related, are deposited in the Fall in crevices of the bark, and not in the earth on the roots, and this may lead to intelligent study of modes of destruction. Of aphides and their close relation, the treatise is chiefly the work of Mr. Joseph Monell, a name new to science. Mr. Monell is a young man of St. Louis, generously educated by Mr. Henry Shaw, whose numerous good works, in connection with St. Louis, is now almost world-wide, and who we are quite sure could wish no better return for his good work than the prospect of life long usefulness as exhibited by his young protégé in so admirable a scientific treatise as this. It will be news to most of our readers that there are thirty-eight different species of aphids, including near allies described in this treatise. No doubt most persons who have been troubled with these miserable plant lice ever stop to consider that their "brothers and sisters and cousins and aunts" in species made a huge list amongst themselves. It must have taken a great deal of patience and judicial power over scattering facts to have worked out the life histories of so many of these minute insects; and Mr. Monell will need no better inducement to keep on with his very useful studies than the praise he will certainly receive from all, who interested in plant lice, profit by what he has already done.

NINETEENTH REPORT OF THE PARK COMMISSION, BALTIMORE, MD.—The parks are supported mainly by a tax on the passenger rail road companies. This source of income yielded \$85,575.13 last year. The popularity of the park is attested by the figures 286,041 vehicles drove through Druid Hill Park, 23,995 came in on horseback, 140,035 came in on passenger cars

and 392,471 walked in. We believe the passenger cars pay one cent a head for every passenger carried over the city roads. We see by this that they receive \$8,402 for carrying the passengers at 6 cents per head to Druid Hill Park alone; so that if the street car companies of Baltimore are under one organization they can well afford to pay the tax; and it is a matter of surprise that other cities do not take some similar manner of making those who reap the great profit, bear a proportional part of the public burthens.

GUIDES FOR SCIENCE TEACHING—By Professor Geo. L. Goodale. Published by the Boston Society of Natural History, No. 2, "concerning a few common plants," two small tracts. We do not know whether these works are distributed freely by the society, but if not the two cannot cost over a quarter of a dollar. It would be difficult to give anything more valuable in so small a compass. Every teacher including parents, will find these "guides" just what is needed to interest children in the science of common things.

PROCEEDINGS OF THE MONTGOMERY Co., O., HORTICULTURAL SOCIETY FOR 1878.—From E. E. Barney, Dayton, Ohio. A volume of eighty pages, and will probably compare even with the very popular transactions of the Massachusetts Horticultural Society in the variety and richness of its contents. Ohioans may well delight in this model society.

REPORT OF THE PENNSYLVANIA FRUIT GROWERS' SOCIETY.—President Hoopes and Secretary Engle have cause to be proud of the production of a volume like this. It is probably unique in beauty and value among any of the kind published, and this too in spite of the fact that this society has perhaps less income than any similar society in the United States. The fruit plates are exquisitely drawn and engraved. One of the blemishes is in a paper contributed by Mr. Chas. H. Miller, landscape gardener to

Fairmount Park. He contributed two papers on landscape gardening, one illustrated by two plans—one showing an unimproved farm garden, the other how it might be beautified by landscape gardening at a small cost. The text for the latter has been left out, and the plates put in with the chapter having no connection with them; the paper will probably re-appear and the error corrected next year. One dollar sent to the treasurer, Geo. B. Thomas, West Chester, Pa., constitutes a person a member of the society for one year; but these proceedings, part of the member's free privileges, are surely worth this sum alone.

PROCEEDINGS OF THE WORCESTER Co., MASS., HORTICULTURAL SOCIETY, FOR 1878.—From E. W. Lincoln, secretary. This always comes welcomed to our tables because it is always full of information and valuable suggestions appropriate to all the country as well as to a small county in Mass. In this for instance, we see mooted an idea we have often urged on our readers, that the present system of competition by schedule, useful in the past is an absurdity, and should be abandoned for the plan of competition with itself. An article by Smith should not have a premium because it is better than Brown's, but because it is better than average specimens of its own kind. In this society under the old "schedule system," the secretary says "two or three ladies, usually the same throughout the season, monopolise our premiums for flowers arranged." Of course judging on the intrinsic merits of articles exhibited will require a higher order of judges than is now sufficient to test the comparison between two exhibitor's collections, but it must come to this before these meetings become popular with exhibitors.

THE ROYAL HORTICULTURAL SOCIETY OF LONDON.—This distinguished body has honored Col. M. P. Wilder by electing him a correspondent; an honor we need not say very worthily bestowed.

are sometimes gotten up, is "a caution" to those who are strong for reform in artistic taste and beauty. Oftentimes the hall in which the exhibition is held is filthy and in various ways dis-

gusting. The plants, fruits, or vegetables are displayed on dirty boards, or perhaps with some little attempt at neatness, or dirty paper hastily thrown over the dirty boards. The articles exhibited are jumbled together without any tasteful arrangement, or often the articles themselves are of the most primitive character in taste or culture. Horticultural societies are for the purpose of elevating horticultural taste in the localities where they exist. Premiums and awards do not constitute the whole of their duties. Their own example has much to do with the success of their labors, and a pretty exhibition room should be the beginning of their good work.

PENNSYLVANIA FRUIT GROWER'S SOCIETY.—This society held a very successful annual meeting at Reading. Mr. Josiah Hoopes, President, being unwell and absent, Mr. Henry M. Engle, of Marietta, Vice-President, presided. Valuable information was contributed by Caspar Hiller on apple culture in Lancaster County; by Judge Stitzel, on that of Berks County. Various members paid their respects to the curculio on the plum and cherry. Messrs. Zew, Garrettson, Funk and Miller discussed fertilizing and fruit growing; Mercer on gave his experience in grape culture, and Satterthwaite on pear culture. Mr. Engle on vineyard management. The chief feature of the meeting was the great number of new members who gave their experiences, and in this way there was much going out of the way of beaten paths in opinions, and much more new "food for thought" thrown in than is usual. The Hon. Judge Stitzel gave the following very interesting essay on fruit preserving houses:

Many of the finest fruits, says Judge Stitzel, naturally undergo speedy decay, and those most highly esteemed are often only to be enjoyed by those who produce them, and cannot be put into market except for immediate consumption. This decay has been found to take place most rapidly when the fruit is exposed to considerable or frequent changes in temperature. We know that certain kinds of grapes, packed in saw dust were imported to this country from warmer climates; we found that unripe berries could be preserved in their natural state a long time in bottles or jars, filled in with dry sand or saw-dust and the jars corked or sealed and placed in the ground a considerable depth to preserve an equable temperature. This method could be employed with many fruits as well as vegetables. Pears, the

finest kinds of which are apt to rot immediately after maturity, were found capable of preservation for months by being closely covered in stone jars and kept in a cool place. Similar experiments revealed the fact that an evenly cold temperature was a reliable preventive of decay in fruit and have led to the construction of the modern fruit house. The value and convenience of this quite recent improvement will be apparent when we consider the great advantage in keeping fruit until the next ripening season, thus enabling us to get the very highest prices for what we have to sell, after the market has become bare of such fruit as has been kept in cellars, or shipped from other localities, besides the advantage of having it for family use all the year round. I may say without fear or contradiction that fully thirty-three per centum of all fruits stored in the ordinary way, annually go to waste; this would of itself more than pay the interest upon the cost of a modern fruit house. This is true of the apple crop itself, and the same may be said of pears. I am satisfied that if pears are properly handled and put into the fruit house until the market becomes bare of those varieties sold out of the orchards, twice the amount of money can be made out of them. They should be carefully picked when matured, but before too ripe, and they will improve in flavor when allowed to ripen fully in the fruit house. In this way such varieties as the Buerre Easter, Columbia, and Vicar of Winkfield will keep until the following April. That many kinds of vegetables, berries and stone fruit can be preserved a greater length of time than in the ordinary way, has been demonstrated by the use of the fruit house. Cider will also keep sweet much longer than when kept in cellars where the temperature is constantly varying. The temperature in a well constructed fruit house can easily be kept within a variation of eight degrees, say between 32° and 40°, and proper care should always be taken in regard to ventilation, as it is to this that we can attribute the main success in preserving fruit. A refrigerator or fruit house can be constructed at a very little cost, say from \$250 to \$500 that would admit of storing one thousand bushels of fruit; this would accommodate a half dozen neighbors who might club together and erect one at their joint expense, or one of their number might build one and by a charge for storage of ten or twelve cents per bushel, receive more than the interest upon his investment, besides the cost of stocking it with ice.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

TASTE AT HORTICULTURAL EXHIBITIONS.—The manner in which horticultural exhibitions

I will now describe a fruit house built on a larger scale, having a capacity of 4,000 bushels, which has been in very successful use for twelve years. It is fifty feet square and built of stone and is twenty-eight feet high. The fruit room is on the first floor and is eight feet high with an enclosed space four feet in width, on the four sides filled with ice from above. The ice house proper is on the second story and is eleven feet high, which with the spaces referred to is filled with ice. There should always be at least one foot of saw-dust or some other non-conductor of heat between the ice and the outer walls. The floor must be water-tight with pipes or some other means of conveying the accumulating water to the ground beneath the building. The third story floor is about three feet below the square; this room is intended to secure ventilation and should be covered with some non-conductive material to prevent any heated air from entering the building from above. There is a room or space about three feet deep below the floor of the fruit room, which is filled from the surplus of unmelted ice that remains in the second story, and this must be done before stocking with fruit in the Fall. Ventilation is secured through four box ventilators twelve inches square, leading from the fruit room through the ice room and extending into the vacant space above the third floor. These box ventilators are provided with valves or stops by means of which the temperature in the fruit room may be easily regulated. The fruit is stored in common boxes containing two bushels each, the bottom of one box forming a cover of another, and these boxes are piled in tiers or sections with spaces between to of admit passage and free circulation. Access to the fruit room is secured through a kind of vestibule with outside and inside doors, both lined with non-conductive material—hatters' waste wool has proven an excellent non-conductor for this purpose. The two doors, an inner and an outer door, are necessary to prevent the admission of air when persons pass in and out.

The cost of this building when erected was about \$2,000 and it requires about 1,000 tons of ice to fill it properly, about two-thirds of which is annually consumed by the heat. Ever since the completion of this building it has been used for the storage of various kinds of fruits, and has proven an entire success, and the owner has realized a handsome profit upon his investment.

There is another large refrigerator or fruit house in Reading that is constructed upon a somewhat similar plan which has been used for preserving tropical fruits and storing eggs, etc., for which purpose it has proven very successful. There is still another large refrigerator or fruit house in this city, quite recently completed and stocked with ice, which will be ready for the storage of fruits, etc., the coming season, and which will prove a great convenience to fruit growers as well as consumers of this place."

THE NEW YORK HORTICULTURAL SOCIETY.—This seems to be in a very prosperous condition. The meetings are held regularly at Republican Hall, 55 West Thirty-third Street on the first Tuesday of each month, and the premiums offered for plants and flowers are very liberal. Mr. James Y. Murkland, 12 Courtlandt Street, New York, is the recording secretary.

THE AMERICAN POMOLOGICAL SOCIETY.—A great blow to the success of the Nashville meeting is the death of the energetic Secretary, W. C. Flagg, last Autumn. It requires a great deal of correspondence and general hard work in advance to make a meeting go off at once to good work, and as this will be out of the question this season, it will require a more than usual effort on the part of those who recognize the great national importance of this society to make everything work prosperously. It will be well for those who have important facts or information not to wait on invitations to offer them as is so often the case with the best pomological workers. The question of a succession to Mr. Flagg will not be among the least important ones of the session. The preparation of the volume of the proceedings, demands great good judgement as well as pomological knowledge. As this requires the co-operation of the president, some one within reach of the other at the work will be a consideration. For this, as well as for eminent fitness in every respect no one would be more acceptable to the great body of pomologists than Mr. Robert Manning. In the event of the services of Mr. Manning not being obtainable, no one would be more acceptable than Mr. P. J. Berckmanns, of Ga. The venerable President Wilder, will of course be re-elected. We do not know whether either of these estimable gentlemen will serve. There are others no doubt quite as worthy to fill the honorable office. We only name these in order that the subject may begin to receive attention.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The English papers are deploring the fact that the rage for carpet bedding have turned away people's attention from other pretty styles of gardening, and some of them are therefore turning their shafts wholly against this way of doing things. But this is perhaps the other extreme. A carpet bed ably designed and neatly executed is a beautiful object; but we need not let the fashion take complete possession of the flower garden. We should like to see the greater employment of belts and borders of mixed flowers, with back grounds of low shrubs or evergreens, and intermixed among them the taller or stronger growing hardy herbaceous plants. There are many things, such as Phloxes, herbaceous Spiræas, Irises, Dracocephalums, Funkias, Asters, Veronicas, Columbines, Monardas, and Tradescantias, that do remarkably well under such circumstances. It is really a sort of wild garden, touched up by the hand of art, as all garden work, wild or otherwise ought to be.

It is however getting too late for theoretical instruction. The time has come for hard practical work, and brief hints will be more acceptable than long essays, we may therefore say that among the matters requiring immediate attention in the gardens of the Northern and Middle States

will be to prepare ground for planting. Soil loosened two feet deep dries out less in summer than soil one foot deep. Rich soil grows a tree larger in one year than a poor soil will in three. Under drained soil is cooler in summer than soil not under-drained. The feeding roots of trees come near the surface; therefore plant no deeper than necessary to keep the tree in the soil. If there be danger of its blowing over, stake it, but don't plant deep. One stake set at an angle, is as good as two set perpendicular. Straw or mat set round the tree keeps the bark from rubbing. Large stones placed around a transplanted tree are often better than a stake. They keep the soil moist, admit the air, and encourage surface roots. Shorten the shoots at transplanting. This induces growth, and growth produces roots; and with new roots your tree is safe for another season. Unpruned trees produce leaves, but little growth, and less new roots.

Place broad-leaved evergreens where they will get no sun in winter, yet away from where the roots of trees will make the ground dry in Summer. Deep soil, but shallow planting, is all important for them. In transplanting, take care of the roots. Good roots are of more importance than good "balls." Balls of earth are useful in keeping fibres moist; but don't sacrifice the best fibres five or six feet from the tree, for the few fibres in the ball at the base. When

roots are rather dry, after filling a portion of soil, pour in water freely. After all has settled away, fill in lightly the balance of the soil, and let it rest for a few days. This is as a remedy, not as a rule; for watering this way cools the soil, ultimately hardens it, and in other respects, works to the injury of the transplanted tree.

Unless inside of a round ring, or circular walk, don't plant trees or shrubs in formal clumps. They are abominations in the eyes of persons of taste. Meaningless irregularities, form the opposite extreme. Remember, "Art is nature better understood."

In your flower-beds, if the plants sickened last year, change the soil. Renovated earth is renewed health to consumptive flowers. Sow annuals as soon as the ground is warm. Too early sowing and deep covering rots seeds very often; this is frequently the cause of one's seeds being "bad." Prepare flowers in their winter quarters for the summer campaign, by gradually inuring them to the air before setting out finally. Set out when all danger of frost is over. Don't set out a plant with a dry ball; but water well while in the pot an hour or so before.

COMMUNICATIONS.

SCRAPS.

BY REV. HENRY WARD BEECHER.

It is perilous to carry grading about a house into Autumn, inasmuch as late rains and early Spring rains will be likely to cut and furrow the surface, and when on a side hill, to wash away no inconsiderable part of your work. Yet it sometimes happens that you must run the risk. Grass seed after the middle of October will hardly get a good hold in the latitude of New York, and in some seasons, when cold comes early, it will not fasten itself at all. Under circumstances like these I sowed rye liberally with grass seed. It came well; formed a good covering; and even when ruts were made by rain the long blades of rye lay down in the channels and prevented further deepening. In the Spring two or three cuttings, as soon as the rye is six inches high, ends its career and leaves the grass to itself.

There is a prevalent notion that much skill is required to raise carnations. Any man who can raise lettuce or peas can succeed with carnations. I obtain the best seed possible; sow it thickly

in rows, in June, as I would salad. It comes speedily. When about one or two inches high prick it out upon a prepared bed, about eight inches apart and let it grow till frost comes, then very slightly draw earth enough to it to cover the collar, and let it alone for the Winter. When I used to cover it with straw or brush I lost half my plants. But by leaving them open and unprotected they come through the Winter without bleaching, and go to work early.

The great difficulty in blooming carnations is the want of good seed. In some seasons, buying the best seed in market, I have not raised a single double. It does look as though foreign seedsmen sometimes adulterate their carnation seeds; for that it should be done in New York is not to be thought of.

There! I have done my duty for the nonce. I mean to send you some notice about building on a side-hill.

ANEMONES.

BY W. C. L. DREW, EL DORADO, CAL.

Anemones which are among the oldest of garden favorites and which are highly prized in Europe, are very seldom met with in America even in large collections, yet all who see them when in bloom admit them to be far superior to many plants now cultivated by American amateurs and florists; one reason for this is that nearly all American catalogues speak of them of being difficult to cultivate, which fact my experience indicates to be a charge wholly unfounded, and one which has deprived our flower loving people of one of the grandest flowers in cultivation.

As a general rule, what few growers there are of the Anemone in America and many of those in Europe, only grow the common form of garden anemones. *A. hortensis*, varieties, known also as *A. stellata*. They grow these varieties to the almost total exclusion of the brilliant original species, such as *A. coronaria*, and while I would not have any one give up the beautiful *A. hortensis* varieties, I would ask of them a fair share of patronage for the other varieties which are equally beautiful and far more brilliant.

A. coronaria is now to be had bearing double and single flowers of the most brilliant hues, running through many shades of scarlet, red, purple, white and variegated, and as there are some three hundred varieties of *coronaria*, the most difficult to please, can make a selection of them

to suit the taste. I would have *A. coronaria* grown by every amateur in America.

A. fulgens, a native of Southern Europe, where it is said to dazzle the eyes with its brilliancy, is a most grand flower, being, when in bloom, a marvelous glow of intense crimson.

A. Japonica alba, known also as *A. Honorine Jobert*, is one of the grandest plants known to cultivators for full blooming, from late Summer until after heavy frost it is one grand perpetual mass of snowy bloom. There are other varieties of which I would speak, but space and time forbid.

A. coronaria can be set out and planted at nearly any season in the year. *A. hortensis* and nearly all other varieties can only be moved with safety in the Fall. If any of the MONTHLY readers wish further directions I will give them through the MONTHLY, or by mail if they will address me, enclosing a stamp for reply.

SKILL AS DISPLAYED IN GARDENING.

BY GEO. WOLF HOLSTEIN, BELVIDERE, N. J.

Although not a member I have had the pleasure of attending several of the meetings of the Germantown Horticultural Society. I was very much interested at a late meeting in the discussion which took place on the growing of so-called half hardy evergreens, and also in regard to the skill displayed by gardeners in this country and in England. I think the idea intended to be conveyed by Mr. Morris and concurred in by you, is certainly correct.

However much we are prone to judge of the skill of a workman simply by the result of his labors, we must confess that this is not strictly just; that we should take into account not only the result but the difficulties that may have been overcome in attaining that result as well. Certainly, other things being equal, the difficulties overcome are the measure of the skill displayed.

In September, 1877, daylight one bright morning found us off Cape Race, Newfoundland. Steaming rapidly along in full view of that terribly rugged coast, I gazed fascinated on those perpendicular cliffs, against which so many noble ships have beaten out their lives, leaving nothing but a few scattered planks to carry home the tale of disaster. As we neared the entrance to the harbor of St. Johns I noticed a break nearly half way down the cliff upon which the signal station stands, and on turning the glass towards it I discovered a narrow plateau, perhaps two hundred feet

wide, accessible only by a ladder from the top of the rock above, and laid out in little patches separated by low stone walls. Upon a nearer approach these proved to be terraced gardens, neatly laid out and cultivated. Certainly this was gardening under difficulties, and yet perfectly protected as it was to the north-west, it was probably quite successful.

Just beyond the old town of St. Johns bursts into view through the narrow opening in the mountains, which terminated on either side in perpendicular cliffs rising to the height of four hundred feet. Sailing into the narrow land-locked harbor our vessel was soon secured to the wharf, whilst we were busy admiring a species of zoophyte, called by the natives squid squallis, which swarmed in the water around the pier. They were as beautiful as a flower. From an almost transparent disk hung long hair-like filaments of the most brilliant colors, crimson, pink, carmine and almost purple. As they were swayed back and forth by the swell, the effect was very beautiful.

After dinner, which we took on board the steamer, we landed, and taking a vehicle called by courtesy a carriage, of the usual John Bull type, with wheels heavy enough for a cart, we drove up "River Head" into the country. I was fearful when we started that the poor little pony would give out under his load, but he proved himself equal to the task, and took us at a rapid rate over the finest country roads I ever saw. All the roads in the neighborhood of St. Johns are covered with a sort of gravel, apparently formed by the disintegration of the highly silicious sandstone, with which this part of the island abounds.

Along both sides of the St. Johns River—which by the way we would call a brook—are country seats of the wealthy merchants of the city—their Summer homes—for in the Winter, I was told, they moved into town and lived over their shops. The grounds were so shut in by thick plantations of trees, or rather saplings, as they never attained the proportion of trees, that we could not have much idea of them. In the country agriculture seemed to be just then confined to the cutting and curing of oats for fodder, as the grains did not ripen. The trees, principally evergreens, rarely attained the height of fifteen feet unless in some sheltered ravine, and all had a decided leaning towards the south-east. The farm houses whilst two stories high in front, to the south, were but a few feet high behind, the

roof extending almost to the ground in order, I imagine, to allow the wind to slide over. On our return to the city we called on the Rev. Moses Harvey, pastor of the Scotch kirk, to whom we had been referred as being the "brains carrier of the island." We found him a very pleasant gentleman. Next morning Mr. Harvey called at the ship, and accompanied us to all points in the town, among others the Roman Catholic church, which is on the hill immediately opposite the entrance of the harbor, and though plain, is very large and contains many works of art, some of which are very fine. The government house was also visited and then that of Mr. Murray, the gentleman in charge of the geological surveys now being made of the island. Unfortunately he was absent on an expedition into the interior, but we were very cordially received by Mrs. Murray, and shown his extensive collection of the minerals of Newfoundland; from this we formed a much higher opinion of the country than before. Copper, coal, iron, nickel and gypsum are abundant. Mr. Murray's "reports of progress" are full of information. In the grounds of the governor's house we noticed a lovely bit of lawn used as an archery ground, sheltered on the north by a thickly planted belt of trees and shrubs.

In the afternoon we drove out to the north of the city, visiting a little fishing station at the head of a narrow cove running in from Torbay. The scene here is one of desolate grandeur; a small stream comes down from the interior through a narrow valley, flowing out over a stony beach of about one hundred yards in length, at either end of which the cliffs rise perpendicularly two hundred feet. The sea in the distance was apparently motionless, its glossy surface unruffled by a single white cap, and yet, with nothing to cause them but the ocean swell which rolls in, with nothing to break its force from the western shores of Ireland; the breakers were magnificent, spray dashing fully forty feet into the air. What the scene would be were a strong easterly wind blowing we left to our imagination.

On our return we called to see a young lady whose acquaintance we had made on the steamer. On our expressing a desire to see the garden, we were shown all over the place, and were astonished at the result attained. The flower garden was gay with the more hardy kinds of flowers, among which I noticed some especially fine hollyhocks, the most brilliantly colored I ever saw. The vegetable garden was as usual protected

on the north and west by a belt of standard trees. In it were dwarf pear and apple trees loaded with fruit, gooseberries, currants, very fine cabbage, turnips, celery and numerous frames which had contained cucumbers and melons. I was surprised at the skill displayed in this garden, and thought it equal to anything I had seen elsewhere, even, though the only result was a lot of fine cabbage. Now this, it seems to me, displayed a much higher order of skill in gardening than the superb specimens of a fuchsia described by you as growing without protection on the Isle of Wight.

Six weeks after this I found myself in San Antonio, Texas. Here I expected to find examples of semi-tropical gardening which would throw us poor northerners completely in the shade; instead I saw nothing. At Marshall I noticed two magnificent specimens of Gardenia, each at least three and a half feet high by eight in circumference, with flowers two inches in diameter. I however found plenty to admire in Texas, even though disappointed in her gardens. Want of time prevented my going to Galveston, where I would probably have had my expectations realized.

EDITORIAL NOTES.

LANDSCAPE CEMETERIES.—In Mr. Robinson's *Parks and Gardens of Paris* reference is made to Laurel Hill Cemetery, Philadelphia, as the first landscape cemetery established in the United States. If mere rural cemeteries as distinguished from the common burial ground of our forefathers be intended, there might be some foundation for this claim, for Laurel Hill followed close after Mt. Auburn at Boston, which has to have the honor of being chronologically the first; but as a true specimen of landscape gardening in connection with human burial grounds, Spring Grove Cemetery at Cincinnati must take priority, and though dating back to 1844 is still pre-eminent. In all that constitutes true landscape gardening Spring Grove is as far ahead of those which preceded it as they were an advance on the church yard lots.

In most of the cemeteries established prior to Spring Grove, we find a great gain over old habits in the introduction of trees, shrubs and flowers, a few curved carriage paths or an occasional seat or arbor where some distant view may be quietly examined. The entrance to the

grounds have often good architectural pretensions, and here and there are small pieces of well kept grass, with an occasional clump of shrubs, or perhaps a mass of pretty tangled vines. But the lot holders eventually own everything; the rare trees are felled, most of the little attempts at garden art disappear, till in the end there is little left but a mass of graves and grave stones; and instead of a lovely park wherein even the dead may preach to us that the true lesson of life is to love to improve and enjoy it, we have a mass of horror into which few care to penetrate but those to whom it is a luxury to believe that the beautiful earth is a world of woe, and that the grand climax of religious faith is the conviction that man was made to mourn.

But Spring Grove is and always will be essentially a park. It employs in Mr. A. Strauch an eminent artist, one of the most accomplished landscape gardeners in the world. A large portion of the grounds is devoted wholly to landscape beauty, and there is not a single element in landscape gardening—earth, sky, trees, or water—that is not pressed into service. Surely if it is a worthy aim so to live that the world shall be better for our having come into it, those who are to die and take their last long sleep in Spring Grove, will have pleasant dreams about the beauty they helped to create above them, and share in the enjoyment of those who wander about their graves. For in this cemetery every lot holder has a share in the cemetery park. The surplus over actual expenses is invested, so that by the time the whole ground is occupied there will be a fund sufficient to maintain the beautiful landscape garden in perpetuity. In this way over \$50,000 have been already set aside. We have heard it stated this plan will not find general favor, that people generally like to have exclusive control over their separate burial lots; but the popularity of the Spring Grove plan is in no better way attested than by the fact that lots to the value of \$29,000 were sold last year.

It is to be regretted that in a work like Mr. Robinson's, if it were thought desirable to refer at all to American cemeteries, more justice should not be done to Spring Grove,—not in any way to detract from the merits of Laurel Hill as an admirable pioneer in the advance towards more rational modes of sepulture but as undoubtedly the most successful example of a landscape cemetery in the world.

JAPANESE AUTUMN SCENERY.—By and by when the tourist steps through Japan as he now does through America, he may not think our country the only one to admire for its gorgeous Autumn scenery. This is what we learn of Autumn color in Japan from the *Tokio Times*.

"The time for leaves to change their color has come. This change being premonitory of Winter, gardens and groves cannot be said to wear the same cheering aspect as in the blossoming time of Spring, nevertheless they surpass in grandeur; and there probably are few who take such great pains as the Japanese to have a fine display of leaves of various hues at this period of the year. A sight-seer would be well repaid for a visit on a sunny afternoon to the garden of plants, (Shokubutsu Yen) at Koishi-kawa. The mere writing of one's name and address in a book, kept by the momban, is all that is necessary to obtain admission into the grounds, which evidently were the site of the yashiki of some daimio in the days past. For the first few hundred yards the garden is laid out neatly with foreign and native plants, but these at present are for the most part leafless. The path then goes along a plum orchard and takes a turn to the left afterwards descending to a pond below. It is at this place that the most splendid sight is seen. Bushes of dodan, a kind of shrub, trimmed into various shapes, are dressed in crimson leaves, intermingled with those of the maple, generally of the same color, though in some cases slightly tinted with russet. The Icho (jinko) appears among them in gold, and above are seen the lofty pine and oak in deep green. All these bright colors reflecting upon the water in the pond make a peculiar effect hardly describable with a pen. In one word, the hillside appears as though it was ablaze. Other gardens in Tokio are not less attractive, and in particular, the noted maples in the grounds of the temple of Benten, at Oji, are now exceedingly fine."

PARKS AS EDUCATIONAL INSTITUTIONS.—One of the Philadelphia newspapers recently had the following paragraph:

"It is also contemplated publishing a book which will contain the Latin and common name of each plant and tree, which will be accompanied with a map of the grounds, the various plats marked in different colors, corresponding to those placed at the bottom of the map, and reference to which will give the name of the plant or tree the visitor may wish to examine, with its location and other points of interest. It

is expected that an appropriation of \$3,000 will be made for this purpose, either by councils or the park commission. The books will be sold for twenty-five cents each. It is hoped by this means to render Horticultural Hall and its surroundings more popular with the general public, and also to afford persons desiring to make themselves familiar with the appearance and habits of the trees, shrubs, etc., and the picturesque features of landscape gardening, an ample opportunity to do so."

It is not necessary to publish a work which shall give the "Latin and common name of each tree," but a little book which should give a concise account of any which may have some popular interest, would be in great demand and pay for itself. It is surprising that such a useful work has not been done long since.

EPHING FOREST.—This tract of 5928 acres of land near London, once a forest but now a forest no more in the strict sense of the term, has been set apart by the corporation of the city of London to be uninclosed and unbuilt on, as an open space for the enjoyment and recreation of the public—that is to say a sort of public park forever. This is a large tract, and shows the English people to be widely awake to the necessity for rational recreation for the people.

BANANAS AS SUMMER BEDDING PLANTS.—It is not as generally known as it ought to be that banana plants are very easily kept over the Winter, and make admirable ornaments in the open ground in the Summer season in every part of our country. In very exposed situations they have the leaves split by wind storms, and it will be best, though not essential to some great beauty, to plant in a wind-sheltered spot. One of the noblest of bananas is the *Musa ensete*, about which we find the following practical paragraph in Mr. Henry A. Dreer's excellent garden calendar:

"The noblest of all greenhouse plants is this great Abyssinian banana. The fruit of this variety is not edible, but the leaves are magnificent, long, broad and massive, of a beautiful green, with a broad crimson mid-rib. It is used with success for bedding out, and stands the rain and storms without laceration. Before planting out in May, dig a hole two feet square and about thirty inches deep, filling the hole half full of fresh stable manure pressed in solid, and then fill up with compost of good, light, rich soil, mixed with well-decayed manure; plant the *Musa*, but do not let the roots touch the fresh

manure. In our hot summers it luxuriates and attains gigantic proportions, from eight to twelve feet high, producing a really tropical appearance, and should find a place in every collection where there is a conservatory or greenhouse, for planting therein during the winter, from the fact of its presenting an ornamental appearance among other plants. Those not having the above convenience, by cutting the leaves off, can store it in a light cellar during the winter, with a covering of soil, or planted in a tub; water sparingly. The seeds germinate freely if started in a hot-bed or on bottom heat in the greenhouse."

SCRAPS AND QUERIES.

FRINGED GENTIAN.—A correspondent inquires whether anyone ever succeeded in raising the fringed gentian from seed?

VARIEGATED HONEYSUCKLE.—J.C.S. writes: "I send a leaf of honeysuckle from a branch which sported into variegated leaves, this being the only one which was variegated half yellow and half green, the others being spotted, not reticulated like the Japanese sort. Please inform me, if I strike cuttings of the branch, if the variegations are likely to prove constant."

[There is no certainty. Sometimes such sports will perpetuate themselves on being taken off and rooted, but very often they go back to the original.—ED. G. M.]

CELASTRUS SCANDENS.—M. asks: "Is it possible to have this plant so as to perfect its beautiful seed vessels without planting two together? A gardener tells me it is a dioecious plant, and one planted by itself will not seed."

[It is rather polygamous than dioecious, that is to say there are some plants wholly barren when alone, but there are other plants which have perfect flowers, and by themselves produce seeds. Cultivators should select these perfect flowered plants for propagation.—ED. G. M.]

PROPAGATING CLEMATISES, etc.—A. F. B., Foxboro, Mass., asks: "What is the best way to propagate Clematis, and also *Ampelopsis Veitchii*?"

[For those who want but a few plants, the best mode is to layer a few branches in the ground. Those who grow largely root graft, using Clematis flammula chiefly for roots. All the species of *Ampelopsis* are easily raised from cuttings.—ED. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Out door gardening will soon claim so much attention and excite so much interest that the house plants will not receive as much looking after as formerly. It often becomes a question what to do with them during the Summer season. The general plan is to set the pots out in some partially shaded place during the Summer season where they can be regularly watered and looked after. If one is an adept at potting plants, many of them may be turned out of their pots and planted in the open ground. In this case it is best to prune the plants a little and reduce the ball of earth a little, or they will require so much larger pots next September when they are to be repotted, and will have grown much too large for the space they are to occupy. A friend of ours plants out even his camellias, azaleas and similar plants that are usually kept the whole season in pots, and with great success.

Moving out in the open ground is at any rate one of the very best things to do with sickly plants. Prune them in well, set them out and let them take care of themselves, will generally result in a good healthy growth of young wood. Oranges, lemons, oleanders, camellias, azaleas, palms and ferns even may be treated in this way.

Except south of the Potomac, April is however a little early to speak of setting out plants. It is seldom any of this is done in the Northern States before the first of May, and hardly then in many cases.

COMMUNICATIONS.

ROSE CULTURE FOR WINTER BLOOMING.

BY MR. WM. BENNETT.

Prize Essay, offered by Mr. Peter Henderson, read before the New York Horticultural Society.

(Concluded from page 74.)

No. 8. Temperature.—The temperature should never range higher than from 50° to 55° degrees, Fahrenheit, by night. In day time from 75° to 85° or 90° with sun heat, with plenty of air does no harm.

No. 9. Ventilation.—This should be done with great care, keeping a sharp eye to the sudden changes that take place outside, so as not to let your plants receive any sudden check; but give air at all convenient opportunities. On some days in the winter season when there is a strong wind blowing, it is almost impossible to give air. In preference to admitting the cold air, take the hose and give them a good syringing.

No. 10. Treatment of *Maréchal Neil*.—I would pursue the same general treatment as laid down for the other kinds as to border, manure water, ventilation, &c. In pruning, however, you should aim to get plenty of fine young shoots to lay in, cutting out all old scrubby wood each year and laying in new shoots. The wood of the Neil requires to be thoroughly ripened before starting. Be sparing of fire heat till they are fairly under way.

No. 11. Treatment of *Jacqueminot*.—The best method of treating Jacqueminot, is to plant them out of doors in a bed of the size you intend to cover with glass. Let them grow for at least one year in the open ground before building your house over them. The house should be built with sash, so that you may strip it at pleasure, leaving the plants exposed to the open air till the time for starting. In starting the Jacqueminot house, be cautious not to give too much fire heat. Commence with a night temperature of 45° of Fahrenheit for the first two or three weeks, then increasing to 50° as the young growth advances, giving plenty of air at all convenient opportunities.

No. 12. Cultivating Roses in Pots for Winter Blooming.—To do this successfully it needs extraordinary care and labor in comparison with roses planted out in the open border. To have fine plants for blooming in the winter, you must strike your cuttings as early in the season as possible. From the time the cutting is rooted until it has filled an eleven or twelve-inch pot with roots, it should never be allowed to become pot-bound or stunted. Shift on all through the summer months, doing this as often as the young roots show through the soil, until your twelve-inch pot is well filled with roots, which will be by the middle of September. If all has gone on right, less water should now be given so that the wood may have a chance to ripen, taking care

not to let the plants suffer for the want of water. About the first of October they should be removed to the green-house, giving them plenty of air at all times until the nights become cold and chilly, then the house should be closed.

No. 13. *Failures and their Causes*.—I question if there is any one who has grown rose buds for the market who has not had failures, as well as success. From my own experience, and from what has come under my personal observations, I here note what I consider the causes of so many failures. Over-manured borders badly drained, produce an unnatural pithy growth, which never becomes ripened. Such a border in less than two years, will become a putrified mass of matter, in which no rose bush can possibly flourish. Drying the border in summer time should never be practiced. More failures, probably result from this than any other cause. In the first place, you get no growth of wood to succeed that which you have forced the life out of the previous season; for, in the fall when you start your houses, your rose bushes have not a root or leaf to make one, they have all dried up for the want of water, the border and roots are full of fungus; then you commence to swelter them by a high night's temperature and drench them with lots of water, and you then wonder what is the matter with your roses. You might as well expect a man to live forever with consumption, as for a rose bush to live and flourish under such conditions.

HOT WATER BOILERS.

BY A SUBSCRIBER.

I was much pleased with Mr. Poppey's remarks on heating greenhouses with hot water. The paper has some merit if it does no more than induce gardeners to acquire that knowledge that we usually leave to the engineer or machinist; but I thought he might have gone more into details. He says that our modern boiler is only a heater, and in this he may be correct, but I prefer the old name boiler. I am aware that a boiler to generate steam has more surface exposed to the action of fire than a greenhouse boiler, or simply any hot water boiler, as the one has room to store up steam, the other does not require. He says that 2,137 lbs. of coal are used to put one cubic foot of water, at 32½° into steam. I would wish all my houses were in Guinea, or elsewhere, if I had to consume 1100 lbs. of fuel a day, even in the coldest weather,

to a boiler that carries a little over 800 feet of pipe, to keep the water boiling. I would require to fill the pipes frequently, and find many leaky joints next day.

The house the above pipe is in is 30x64, about twelve feet to the apex; keep the house from 65° to over 70°, and use about twenty tons Lehigh coal a season. I prefer to not have the water leave the boiler at 180° and in most of the time less. The boiler may be considered serviceable if the water at furthest from the boiler is 130° to 150°. Some two or three of the other houses are larger and carry from 1,000 to 1,100 feet to give a heat of 60°; they failed in extreme cold weather, and I attached a small boiler to two of them with about 500 feet of pipe to each; now they are safe and I consider this season has nearly paid the extra cost.

Now, we will examine the conical boiler that has so small a surface exposed to the draft. It appears when we look into the fire it heats the water by absorption, and the only piece of iron exposed in the draft is that lump of iron projecting to the center of the fire. It is the first boiler we had in the United States that was really serviceable. All the new inventions that I have seen are not as good as it, and so say those who have several patterns. The only objection is its cost. Many gardeners praise their boilers the first season. Few of them are to be relied on. The man who removes the old brick flue, and replaces it with boiler and pipe, goes into extacies over the change, praises it, is only sorry he was so long troubled with the abominable hot air; now he has ample heat with little care, no sulphur gas, no sitting up on cold nights, gets the snow to melt on his glass nearly as fast as it falls, etc. The second winter a slight change takes place in his thoughts. He is unable to procure the same amount of heat by 4° or 5° as he had the previous winter. Should he lose as much heat every succeeding season, it is not to be relied on, or will be a bill of expense. This takes place in every apparatus where steam or water is supplied as a medium for heating purposes, and there is no way that I know of to avoid it. Water when heated liberates some neutral salts and alkaline earths, which are deposited on the inside of the pipes, filling up all the interstices in the iron, and reducing their radiating power as stated above. The best preventative is to make allowance when you put the apparatus up.

Having progressed so far in examining Mr. P.'s communication, the remaining points appear to be written for the edification of the editor. However, that may be, the editor has given it to the public, perhaps with the view that some readers would answer some of the questions for the benefit of the readers. Mr. P. puts a question for you or some one to answer; I wish you would answer it. "Has ever any patentee ascertained and informed us of how much heat in his boiler is secured to the water, and how much escapes through the chimney?" To answer the question as it reads, I would say so long as a fire was under the boiler all the heat in the iron goes into the water. However, Mr. P. did not intend to put it that way, and I will call it a slip of the pen. I presume he wants to know how much of the heat from a given amount of fuel is utilized. A patentee said there was no known means of utilizing all the caloric generated. More than half went up the smoke flue and it might be seventy per cent. Experiments by eminent chemists on the locomotive engine show that only ten per cent. of the caloric is utilized; full nine-tenths goes somewhere. Gardeners not a few have shown me furnaces and flues—they ought to be reliable for every-day nature is their study, and ought to be well read on natural philosophy, well and capable to bring and keep us in the right path—and say all the heat in their fuel produced was used in the house. The philosopher tells us that there is as much fuel used in boiling a kettle of water for an old person's breakfast as would generate steam to propel a locomotive one mile. Mr. P. can bring his own deductions on any heater if he has one in use. I think we may get twenty-five per cent. and more, likely less, certainly not thirty, there being so many avenues besides the chimney for its escape. I have no desire to mislead anyone, even though I were a patentee; but there are facts about fuel that every gardener should know is really indispensable, whether they use the hot air flue, steam, water, or any other method. My little experience with gardeners is something curious—they take all the information they receive kindly, but quietly say they don't believe it. It is easy to teach men, but up-hill work to unlearn them. "As the twig is bent, the tree is inclined," is as true now as when it was first promulgated. Bituminous coal is used to make the gas we burn. 2,000 lbs. produces 10,000 cubic feet of gas. To burn the same to produce a

white light without smoke it requires to be supported by two feet of oxygen to each foot of gas. Should one foot of oxygen be used it would produce smoke in abundance, but the two feet of oxygen is required to give it perfect combustion. There is only one-fifth oxygen in the atmosphere and sometimes less, so that 10,000 feet of carburetted hydrogen requires 100,000 feet of atmospheric air to give perfect combustion. Taking in the coke it would use 130,000 feet of air, and probably anthracite coal might require 150,000 cubic feet of air to support a ton weight of such fuel. Suppose you have to use 400 lbs. of coal in one fire, in twenty-four hours you require nearly 2,800 lbs. of air to support the coal. This has to pass through your chimney in the form of carbonic acid gas, and the large bulk of it between three o'clock P. M., and three o'clock, A. M. It is absolutely necessary to give a sharp draft to have a chimney of ample dimensions to carry off the same. A good draft can be diminished; a poor one can get no increase.

The main piece of advice Mr. P. gives is to examine into the propriety of giving our pipes more radiating surface than a four-inch pipe gives. From it we have eleven inches radiating surface, and twelve inches of water to the inch. With a section of an eight-inch pipe you have to heat twenty-five inches of water. Make it an oval shape and you reduce it to six or eight inches and a summer's work to put the article up. It would quadruple the cost without the shadow of an advantage. Gentlemen are driven from the pleasure of keeping horticultural establishments more on account of their gardeners than on account of love for horses or yachts. Many gardeners treat their employer as if his means were for their own pleasure. No gentleman wants to employ a tormentor. If horticulture is neglected by men of means, many of the gardeners of the present day may lay it as much to their predecessors, chiefly as to any other rival pleasure. Horticulture will increase, and the country be covered with pleasant residences and horticultural grounds when the employé studies the comfort and pleasure of his employer, and not sooner. Some may think I am putting facts in too strong a light, but no one has a greater desire to see horticulture flourish more earnestly than I.

[Though not authorized to attach the writer's name to his communication, we may say that he has been for many years an employer of

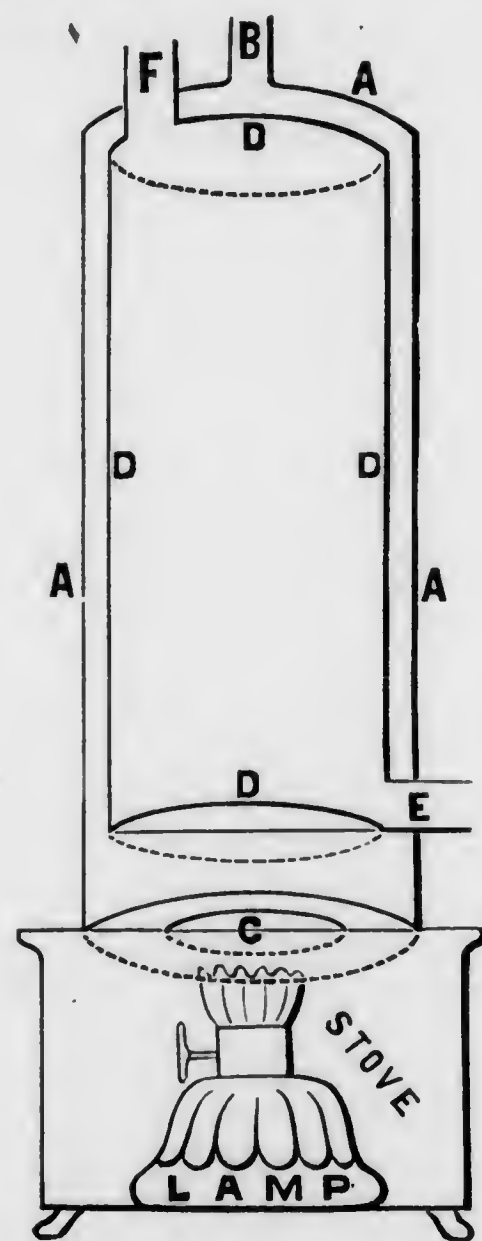
gardeners, and that through many discouragements he still keeps up a very interesting greenhouse establishment, and therefore speaks of steam boilers, hot water boilers, and the relation of gardeners to their employers, from actual experience.

In regard to this boiler question, we are not disposed to grant it much space, because the principles can be readily learnt from any elementary work, and the practice is so varied and varies so much in results by incidental circumstances seldom noted by ordinary observers, that very little actual profit comes to the reader. —ED. G. M.]

HEATING BY LAMPS.

BY W. K. GIBSON, JACKSON, MICH.

An article in the January number of your magazine, on the subject of heating by lamps, has led me to send you the following plan of a cheap and efficient stove for heating small structures and protecting hot-beds in cold nights, as well as furnishing extra heat in greenhouses in very cold weather:



First take an ordinary single coal oil stove, which may be procured at any of the hardware stores, then have made to fit the top of it a heater of galvanized or sheet iron, as shown in the above diagram.

A is the outside cylinder of ten-inch diameter and eighteen inches long, with a two and a half

inch opening in top, B, for escape of smoke, etc. Upon this opening a pipe may be fastened, passing to the outside or into the chimney. C is an opening in the bottom of about six inches diameter, or large enough to cover the lamp of the stove. D is an inner cylinder eight inches in diameter and fourteen inches long, and so secured that its top and sides are one inch from the outer cylinder, except at the bottom, which would be three inches from the bottom of the outer cylinder. From near the bottom of the inner cylinder leads the cold air pipe E, and from the top the hot air pipe F, each passing through the outer cylinder and being three inches in diameter. The operation of generating heat is seen at a glance. The hot air and smoke from the lamp passes between the two cylinders, heating both, and we not only have radiation from the outer cylinder, but the heated air thrown out from the inner one.

If more heat is desired a double stove can be used, and in that case the heater can be made of oval shape with two holes in the bottom. This heater can be used for bed rooms, and the smoke pipe, if carried into the chimney or into another stove pipe, will convey off all smoke and unpleasant odor. It is not intended that the heater shall be made exactly of the size and measurement here given.

EDITORIAL NOTES.

VARIEGATED ORANGE TREE.—At a recent meeting of the Florida State Agricultural Society, Mr. I. Bidwell, of the Arlington nurseries, exhibited a noble specimen of the variegated orange, which had the fruit as well as the leaves of various colors. It was good to eat, and beautiful to look upon.

INSECTS ON ROSES.—There are many little plagues to the rose culturist, especially to those who may have a few plants in pots. Dingee & Conard in their admirable "guide to rose culture," just issued, have the following note about the two worst pests. Coming from a firm that makes a specialty of rose growing, it will tell all that is probably known of the subject:

"Red Spider is a very minute insect, first appearing on the under side of the leaves, and though difficult to see unless present in considerable numbers, its effects are quickly noticeable by the browned or deadened appearance of the leaves.

It flourishes best in a hot dry atmosphere, either in doors or out; moisture is its greatest enemy. Sprinkle or wash your plants frequently, taking care to wet the underside of the leaves thoroughly, and you will not be troubled with red spider. In bad attacks it may be necessary to sponge the leaves daily with warm water until the pest is thoroughly destroyed.

"The Aphis or Green Fly attacks the young growth, and will first be found at the extremities of the branches. It feeds on the juices of the plant, and will soon starve and sicken the whole bush. Remedy: tobacco smoke. This is easily applied by covering the plant with a box or barrel, or even a quilt and putting under a pan of burning tobacco; the smoke should remain on an hour or more. If the insects are very bad it may take frequent applications, but it is a sure cure. A strong tea of tobacco will answer the same purpose, if more convenient to apply. The infected part may be dipped in, or the whole plant thoroughly sprinkled as often as may be necessary. For house plants when tobacco is not desirable, a hot water bath is almost equally effective. The water should be as warm as the hand can bear, and the whole top of the plant immersed two or three times in succession, only two seconds at a time."

ORCHIDS FOR ROOM CULTURE.—We are not in the advance in the suggestion that orchids will in time become popular room plants, for we find in Mr. Grieves' catalogue the following list as having been found to do well under such circumstances:

Temperature not below 40° nor above 60° during winter. Keeping always moderately moist.

Barkeria Skinnerii.	ing plants, and will grow
" spectabilis.	freely in a close humid case.)
Cypripedium barbatum.	Oncidium flexuosum.
" spectabile.	" obryzatum.
" venustum.	Odontoglossum Alexandræ.
" insigne.	" Pescatorei.
" villosum.	" nebulosum.
" hirsutissimum.	" Lindleyana.
" Schlumbergii.	" grande.
Dendrobium nobile.	(Nearly all the species of the
" transparens.	above group may be grown
" heterocarpum.	in a case or under a shade.)
Lycaste Skinnerii.	Pleione maculata.
" aromatica.	" Wallichii.
" cruenta.	Sophranites cernua.
Masdevallia Lindenii.	" grandiflora.
" tovarensis.	(These last grow best on flat
" ignea.	blocks of wood suspended
(The above are very cool grow-	on the sides of the case.

NEW OR RARE PLANTS.

GERANIUM ESTHER LEE.—This is an American seedling. The particular merit lies in the peculiarity of the leaf which belongs to the zonale class. Instead of the usual brown zonale markings the leaf is made distinct from any other variety by the dark zone being wider and almost jet black, giving the plant a most interesting and unique appearance.

A NEW RACE OF FUCHSIAS.—In Mr. H. Cannell's "Illustrated Floral Guide," just received, we find among many very interesting things an account of Fuchsia "Erecta Von Novelty," the flowers of which are erect instead of pendulous as generally seen. It is thus described:

"Remarkably novel and distinct variety, tube and sepals stained with white, sepals broad and well reflexed, corolla light pink, margined with rose; free bloomer, habit strong and branching; flowers erect and well above the foliage."

TORENIA BAILLONI.—There are few who do not know the Torenia Asiatica, one of the most beautiful of our greenhouse trailing plants. A couple of years ago, Mr. Buist introduced to the notice of our readers Torenia Fournieri, which had more orange to the other colors of Asiatica. The new T. Bailloni, as we see by a colored plate in the Garden has the whole of the limb or upper portion of the corolla orange, leaving only the thread and tubular portion purple. It was first introduced to Paris from Cochin China.

THE AMERICAN BANNER TEA ROSE.—This is a striped rose, and is a sport from Bon Silene. It originated with Mr. Cartwright, of Dedham, Mass. The Isabella Sprunt which was a sport from Saffrano, and the white Bouvardia which was a sport from the red one, have proved very constant under culture, but in the case of the sport Beauty of Glazenwood rose there was a sad desertion of its true colors in so many cases that it became worthless. How far this may stand has to be tested, but we see that some sports of popular plants have been constant.

SCRAPS AND QUERIES.

GREENHOUSE LOCATION.—A subscriber, Philadelphia, says: "I have a space between two houses where I am thinking about building a hot house; it faces south and stands back from

the street. The sun strikes the west end about nine o'clock, A. M., and leaves the east end about two o'clock, P. M. The space is twelve by eighteen feet. Do you think it a good place? If so, can I grow a general collection of plants? Will it take more heat for a house twenty-four by eighteen feet, at 45° slant, than two houses twelve by eighteen feet, at 45° slant? Any suggestions will be thankfully received.

[The location is a very good one; it would be more economical to have but one house.—ED. G. M.]

PELARGONIUM, NEW LIFE.—A correspondent writes: "H. Cannell's new geranium New Life, figured on page 330, November 1877, is now in bloom at the greenhouse of Mr. Daniel Barker, Norfolk, Va. It is indeed a novelty in the truest sense of the term, and one that gives promise of being of the greatest value. The style of marking is very singular, though somewhat disappointing to one who has formed his idea from your engraving. The petals are not as regularly marked or striped, though that is occasionally the case. The white is scattered in minute pieces often, and as often the total absence of white is noticed and occasionally a flower will present half the exact counterpart of the grand old "Glorie de Corbonay," the other half, most curiously variegated or wholly scarlet. I have seen some petals divided exactly in the center, half white and half scarlet. It is indeed a gem no lover of that useful family will long be without."

FORCING ROSES.—E. H. New Bedford, Mass., writes: "I wish to ask a few questions to be answered through the columns of the MONTHLY. What is the proper thing to do with a collection

of pot hybrid perpetual roses that have been forced, are now just going out of bloom? Shall I cut them back to encourage new growth, or re-pot them now? I wish to put them in the best condition to force again next winter. What treatment shall I give them; also through next summer what shall I do with them? Will the same lot of roses force as well again? My experience, as well as others about here, is, that one rose, the Gen. Jacqueminot does finely to force one year, after that it does not do well—a very poor bloomer. Will you also give me the names of twelve best roses to force in pots, mostly hybrid perpetuals? Also tell me how to prepare a lot of rhubarb plants to force next winter. I am not a florist, only an amateur. Have a small collection of orchids, tropical plants, and a greenhouse collection for my own enjoyment."

[The same roses ought to force very well year after year if properly treated. We saw the past season a General Jacqueminot forced that had been forced the previous year when it was a young plant and had but three flowers. It was kept in the same pot all summer—not even repotted, and the past winter had fifteen flowers on it. The practice suggested will be a good one. Move in in very early Spring, and get a good new growth during the Summer to get flower for next Winter. The pots containing the plants can be stood out as other pot plants are during the Summer season.

Rhubarb can be early forced. It requires no previous preparation. Dig up well established plants next Autumn, and plant in any half shady place where there is a little heat. Gardeners generally find a good place to be under greenhouse stage.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The injury to the grape vine by the phylloxera, does not seem as bad as it was a few years ago, probably from increase in the number of its parasitic enemies. At least we find grapes now doing tolerably well in places where they

once failed. It is our impression that the insect was distributed with grape vines from some leading nurseries before people knew what it was. Now people examine their plants before they set them out, and destroy those which have little gall-like grains of wheat among the fibres.

Apples, Peaches, Plums and Quinces should

also be examined before setting out for any "borers" that may be feeding in the stems near the collar of the tree. Often the destructive insects are introduced into places in this quiet way that knew them not before.

In planting dwarf Pears, it is very important to have them on a spot that has a moist subsoil, either naturally or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly subsoil, should have a circle dug out two feet deep, and two or three feet from the tree. This should be filled up with well-enriched soil. If the dwarf Pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth.

Strawberry beds are frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly manured soil. It should be well trenched or subsoiled; this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

Buds that were inoculated last Fall should not be forgotten; but as soon as vegetation has pushed forth, the buds should be examined, and all other issues from the old stock taken away. It may also be necessary to make a tie, in order to get the young shoot of the bud to go in the way from which you would not hereafter have it depart.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground, much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

Few things mark a well-kept garden better than an abundance of all kinds of herbs. Now is the time to make the beds. Sage, thyme and lavender grow from slips, which may be set in now, precisely as if an edging of box were to be made of them. They grow very easily. Basil and sweet marjoram must be sown in a rich, warm border. Salsafy and scorzonera like a damp, rich soil.

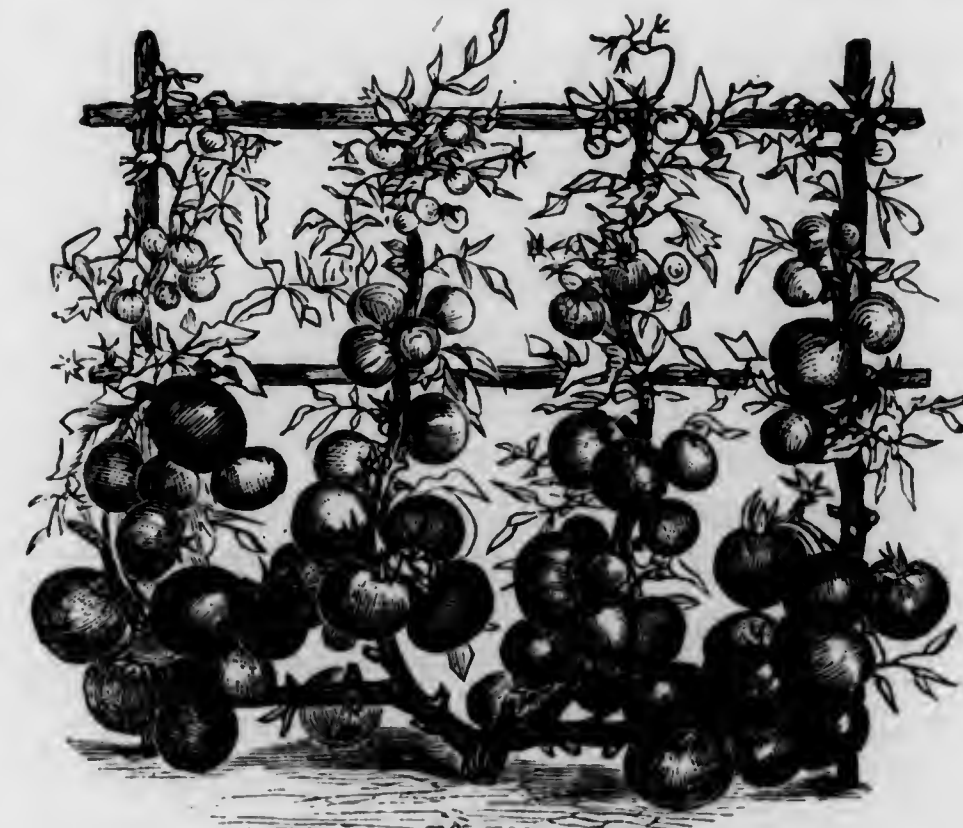
Celery, with most families, is an important crop, and should be sown about this period. A very rich, moist spot, that will be shaded from the mid-day April sun, should be chosen,—or a box in a frame, by those who have the conveniences.

It is not a good plan to cut all the asparagus shoots as soon as they appear. A few sprouts should always be left to grow from each, to strengthen the plants.

Lettuce, for a second crop of salad, should be sown about the end of the month. The Drum-head cabbage is usually sown for a summer crop; but the old kinds of cos lettuce would, no doubt, be found very valuable in rich soils.

Dwarf beans should have very warm and deep soil—sow them only two inches apart. The Valentine is yet the best early, take it all in all.

Bean poles may be planted preparatory to sowing the Lima bean in May. Where bean



poles are scarce, two or three hoop poles, set into the ground one foot from each other, and tied together at the top, make as good a pole, and perhaps better.

In field culture tomatoes are rarely if ever staked. The plants lie on the ground and take care of themselves. It probably would not pay for the extra expense of staking in such cases, as the stakes would be in the way of the horse-hoe and demand so much more hand-labor to keep the weeds down. Yet we are not sure but that some plan of staking would be profitable for all this extra labor; for the tomatoes are much more abundant, more numerous, and of better flavor when staked than when suffered to ramble over the ground.

For garden culture there is no doubt about its

being the most profitable plan, and it becomes a question as to what is the best way of doing the thing. In our own case we use stout branches that have numerous snags on, and which help to support the immense weight of fruit which our plants always bear. Others use a long trellis, sloping and meeting at the top a section which looks like an inverted v (Δ), but the cool air so much shaded soil induces, is not favorable to the best results in tomato growing, as the tomato rejoices in warm ground. Some take pains to make neat upright trellises and train and prune the plants, making a pretty garden picture, as well as producing capital results for the kitchen. Herewith is a picture from Mr. H. A. Dreer, the well-known seedsman of Philadelphia, of one trained in this way.

COMMUNICATIONS.

GRAPE ROT AND ITS PREVENTION.

BY THE SECRETARY OF THE OHIO STATE HORTICULTURAL SOCIETY.

The disease known as grape rot has prevailed to an unusual extent the past two or three seasons in many parts of Ohio and several of the adjacent States. From what I have seen and learned I believe that the crop of not less than a thousand acres of vineyards, or one-eighth of the aggregate of our State, was destroyed by it the past season.

I wish to enlist the sympathies of Editor Meehan and a goodly number of the readers of the MONTHLY in behalf of thousands of our perplexed grape growers, and to ask them to co-operate with us in observing facts and testing experiments that may assist in solving the problem as to the cause of the rot and the means of its prevention; for we are not willing to accept the opinion that these matters are past finding out.

In order to prepare the way for further advance, and to give the public the benefit of what has been already learned, I append here a brief summary of facts and observations, some of which are old and others have been elicited at recent meetings of our State and county horticultural societies in discussions on this subject.

Grape rot has prevailed, more or less, for about thirty years in southern Ohio and parts adjacent, affecting chiefly the Catawba variety; but of late years it has prevailed in nearly all

parts of the State, though less along the lake shore and on the islands than elsewhere, and has affected the Concord, Ives, Hartford and Iona varieties, as well as the Catawba, while the Delaware and a few others escape the rot but are liable to mildew. The disease attacks the fruit suddenly, from the time it is one-third grown until of full size, sometimes destroying the whole crop, but usually leaving a few good clusters, or some sound berries on clusters mostly destroyed.

Vines of thrifty growth and on rich and moist soils are most liable to the disease, and such as have been in bearing six to ten years are more liable than young vines; in fact the disease seldom appears until after three or four years of bearing. Heavy rains in June and July are almost certain to bring the rot, especially if accompanied by hot and "muggy" weather, low barometer and little wind; and soils which allow the water to soak in deeply are worse than where most of it runs off quickly. Sheltered positions are also worse than those fully exposed to winds. Hence vineyards on elevated positions and hard clayey slopes are least liable to the disease.

Vines trained against buildings, especially on the east and south sides, where most sheltered from rain and dew, are not affected with rot; and vines growing on trees where the fruit is largely sheltered from above but open to free circulation of air generally escape disease.

A coping of two wide boards, in roof form, on top of the trellis, will generally protect the fruit from rot. Some advantage is also secured by training the vines so that most of the young shoots and foliage shall be on the upper wires of the trellis and the fruit on those below, taking pains to remove surplus leaves from among the fruit to give free circulation of air.

Covering the fruit by slipping a paper bag over each cluster soon after the berries are formed, and letting remain till ripe, is found a complete protection from rot, and also from insects and birds. The bags are those in common use by grocers, the size six by nine inches, and costing about \$2.00 per 1000. They are fastened around the stem of the clusters with two pins—of course allowing space for the fruit to grow. One gentleman near Cincinnati saves from 5000 to 7000 clusters per year in this way, largely of Catawbas, and finds the quality very superior. The cost, including labor, he estimates at only one-third of a cent per cluster. This

method is likely to be quite extensively used by amateur growers, if not for market.

Seeding the vineyard with oats in the Spring, so that the ground will be well covered with the crop at midsummer, then mowing and leaving it as a mulch on the surface till danger of rot is past, has been practiced by some of our grape growers with good results, especially on rich soils. It is a question whether the covering of herbage operates beneficially simply as a mulch protecting the vine root from the direct heat of the sun and the foliage from reflected heat, or whether the benefit results from the roots of the oat plants drawing off surplus moisture from the soil. Experiments will be made the coming season to determine whether mulching with litter or sawdust has the same effect as oats. In one instance seeding the ground with clover and letting it lie without tillage for two seasons was of benefit in preventing rot, but caused serious check to the growth of the vines. In another case a crop of tomatoes growing between rows of grapes, so as to cover the soil, seemed to prevent the rotting of the fruit, as on a portion of the rows where the ground was naked the grapes rotted badly.

Training the vines on flat trellis or poles within a foot or two of the ground, and so as to cover or shade the entire surface, is also said to have secured exemption from rot; and in one case this result was gained by training vines on poles directly over a small stream of running water.

Fertilizing the roots of vines with ashes, bone dust and superphosphate, where the soil is rather poor, has been found beneficial in promoting the growth of vines but not in lessening the tendency to rot. Under-draining the soil is also found of no advantage in this respect, as it tends to favor the admission of water from Summer rains and to retain it about the roots, when the aim should be to have it run off the surface as quickly as possible. The best seasons for our grape crop are those having the least rain fall during June and July.

Some persons have suspected insect agency of being the cause of the rot, as in many cases the diseased berries have a mark like the puncture of an insect, but these marks are not general, and the closest observers have been unable to find any insect at such work when the disease makes its appearance. The bag remedy is referred to as favoring the insect theory, but other remedies conflict with it, and the bag remedy

does not conflict with the idea that the cause of the disease is atmospheric.

It is difficult to adopt a theory on this subject that will harmonize with all the facts observed, and our aim at present is to induce more persons to observe facts and try experiments. When more of this work has been carefully done will be time to theorize.

Mr. Wm. Saunders, superintendent of the public gardens at Washington, recommended the covered trellis as a protection from mildew (peronospora), in the Report of the Department of Agriculture for 1861. In a letter written by him last November, and read by me at our annual meeting, after speaking of the want of more systematic observation respecting grape rot, he says:

"It seems to me that a special commission of practical men should be appointed to visit vineyards during the Summer of 1879, with a view to more explicit observations on grape rot than we now possess. Isolated observations by different parties in different climates, and under different conditions of soils and locations will always prove unsatisfactory. Many apparent contradictions can be reconciled by simultaneous and systematic observations, and the interest of grape culture would seem to fully justify State appropriations for this purpose. Well directed efforts in this line could not fail of adding to our direct knowledge of this disease of the grape."

A REMEDY FOR THE STRAWBERRY LOUSE.

BY MR. J. T. LOVETT, CORNWALL-ON-THE-HUDSON, N. Y.

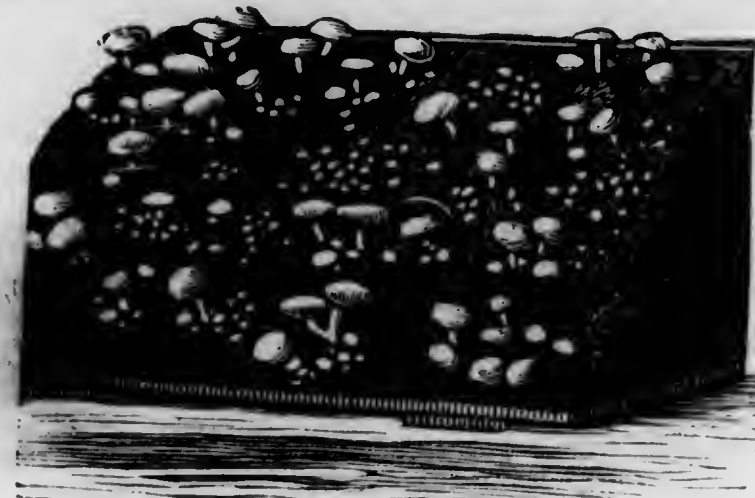
I read Charles Black's notes on the "Strawberry Blight," in the January number of your invaluable journal with intense interest, for if the blight continues spreading and no remedy is found it will soon play havoc with the strawberry crop. Although it never occurred to me that the louse caused the blight until reading Mr. B.'s theory, yet so far as my observations go, I too have always found the louse in greater or less numbers on the roots of plants effected with the blight. The remedy for the destruction of the louse is simply a good dressing of unleached wood ashes; early in the Spring, wood ashes as is well known is a superior fertilizer for the strawberry, and from experience I have found it a dead shot to the louse. It must be remembered that the ashes are to be un-

leached however—leached ashes have but little effect comparatively. Now, if Mr. Black's theory be correct, we have at once a remedy for the blight and can have plenty of strawberries by the application of ashes after the manner that Darwin produced clover seed by increasing the number of cats.

EDITORIAL NOTES.

MUSHROOM CULTURE.—The lecture of Mr. J. J. Smith, before the Germantown Horticultural Society recently, has stimulated inquirers in this neighborhood as to the best mode of culture. We have thought it might serve our readers to introduce here what Mr. R. Buist, Jr. says of their culture in his excellent *Garden Almanac*:

"Mushrooms may be cultivated much easier than is generally supposed. They can be grown in a cellar or shed, or in beds prepared in the open air in the same manner as hot-beds. Take fresh horse manure, shake it well apart, and lay



FRENCH MUSHROOM BEDS.

it into a heap to ferment; turn and mix it well every three or four days, by shaking the outside of the heap, which is cold and the inside which is hot, together, so that every part of it may be equally fermented, and deprived of its noxious quality. When the dung is in a fit state to be made into a bed, which will be in two or three weeks after it has been put together to ferment, select a dry spot for a foundation; mark out the bed, which should be four feet wide, and as long as you choose to make it. In forming the bed, mix the dung well together, beating it down with a fork until from eighteen to twenty-four inches thick. In this state it may remain until the temperature is sufficiently moderate for spawning, which may be ascertained by trial-sticks thrust into different parts of the bed. Divide the large cakes of spawn into small lumps, plant them two inches below the surface, and six inches apart, covering with

two inches of fine light soil, and press down evenly. When finished, cover the bed a foot thick with clean straw, and protect from heavy rains. The mushrooms will make their appearance in from four to six weeks, according to the season."

We would add to this that the shaking up of the materials every few days before using, as we have understood it, is not so much to assist, or to prevent violent fermentation; also in addition we append the following from an English source:

"Materials should be collected at once for the making of fresh beds at the close of this or beginning of next month. Fresh droppings from horses fed upon dry food only are suitable. They should be thinly placed in a shed or other dry place so as not to heat, but if the bulk be considerable throw the droppings into a heap, and when warm and giving off steam, the interior of the heap having parted with about half its natural moisture, the bulk should be turned so that the outside is placed inwards; and when that is heated, the material being about half dried, spread the heap out thinly upon the floor so as to prevent further heating. The drying of the material in that way prevents overheating, and consequent over-drying of the beds when made up.

A SAWDUST PUDDING.—The *Country Gentleman* is cultivating the facetious. In a late issue it says:

"A correspondent of the GARDENER'S MONTHLY, living in New Hampshire, furnishes an example of a successful orchard, with trees standing in grass. The land was never plowed, the ground being unusually rocky. The trees, however, have been regularly and liberally manured. The writer seems to have overlooked the fact that it was the manure and not the grass that made the trees grow and bear so well. We have heard of the farmer who found sawdust pudding an excellent feed for his cows; all that was necessary was to add liberally of Indian meal—and, in fact, the larger the proportion of Indian meal, the more satisfactory was the effect of the sawdust. We are reminded of this anecdote by much that is said in favor of grass in young orchards."

Our jovial contemporary may possibly come across another old almanac joke sometime which will "remind" him, that it is not the harrow which is of so much benefit in the "cul-

tivated" orchard, as it is the man who drives the horse.

TRICK OF THE TRADE.—A correspondent of the *Michigan Farmer*, complains in that paper that various persons are circulating reports about peach trees from here, or from there, or from the other place, having the "yellows," and indeed that it is anywhere but in their own stock.

It reminds us of a time when the writer of this was jaunting it through Kansas. A few of the party getting tired of weeks in a Pullman car, concluded to remain for the night at a hotel in a leading city, near where our car was posted for the night. The runners for the rival hotels said their best. When one was about to drive off with our stragglers, the rival runner remarked that that party were "doubtless the entomological part of the party looking up for the night some subjects for study." The effect of the speech was to draw off half the party to the others' house. But it turned out that it was just in that house that the memorable "subjects for study" were found. Our friend Lyon, the correspondent referred to, may take heart from such experiences.

THE YELLOWS LAW.—It will be remembered that the peach growers of the Lake Shore of Michigan, believed that they could stamp out the "yellows" from Michigan by law, and so had an enactment by which any one harboring the enemy, could be notified, and in the event of contempt of said notice, summarily dealt with. But the yellows have spread fearfully in Michigan in spite of the law. It is proposed now to have the law amended. The *Michigan Farmer* says the failures seem mainly to have grown out of the selection of unsatisfactory persons as commissioners, or the ignorance or waywardness of the owners of diseased trees, and a possible lack of thoroughness or independence on the part of such commissioners.

ASPARAGUS IN THE SOUTH.—Few people have an adequate idea of the great difference between gardening at the North, and gardening at the South. While the Northern people are worrying about what will stand the winters, the Southern people have to find out what will best endure the long summers. In vegetables this distinction has particularly to be noted by those who would succeed with their crops. In regard to asparagus we note the following in the de-

scriptive catalogue of Mr. Richard Frotscher, of New Orleans:

"The asparagus is not extensively cultivated in the South; not that it is not liked well enough, but from the fact that it does not succeed as well as in more Northern latitudes. It seems that it is short lived, the roots giving out soon, or throwing up very small shoots.

"The ground should be well manured and prepared before either the roots or seeds are planted. For this climate the sowing of seed is preferable. Roots are generally imported from the North, and I have found that the roots raised here, one year old, are as strong as those received from the North three years old. Plant the seed in early Spring. Soak over night in water, plant in rows or rather hills one foot apart and two feet between; put from four to five seed in each hill, when well up thin out to two plants. The following Winter when the stalks are cut off, cover with a heavy coat of well-rotted manure, and a sprinkling of salt; fish-brine will answer the same purpose. In the Spring fork in the manure between the rows, and keep clean of weeds. The same treatment should be repeated every year. The bed should not be cut before being three years established. Care must be taken not to cut the stalks too soon in the Fall of the year, nor until we have had a frost; if cut before it will cause the roots to throw up young shoots, which will weaken them."

SCRAPS AND QUERIES.

JAPAN PERSIMMON IN NEW YORK.—C. M., Havana, N. Y., asks: "Whether the Japan Persimmon will be hardy enough to stand the winters of Western New York," but we do not know of any one who has had the experience and could answer the question. If there be, we should be glad of the particulars.

KIEFFER'S HYBRID PEAR.—W. F. H., writes: "Please inform me through the GARDENER'S MONTHLY, if the Kieffer's Hybrid Pear is the same as LeCompte offered by P. J. Berckmans and H. H. Sanford, of Georgia, and the same as described by S. S. Parsons in the MONTHLY last year, as Chinese Sand Pear of Thomasville, Georgia."

[The Chinese Sand Pear is one of the parents of Kieffer's Hybrid, which so far as we know is the only hybrid known between the Chinese

Sand Pear and our common garden pear.—ED. G. M.]

THE CABBAGE WORM.—We see by the following note from P. M. K., Brookston, White County, Indiana, that the cabbage worm has at length reached that far west. The only comfort we can give our correspondent is, that in a year or so an enemy may follow, the butterfly and the caterpillars will not then be as numerous:

"Last year the cabbage crop in garden and

field was destroyed by a dark colored insect about one-fourth of an inch long. It made its appearance and attack upon the cabbage some time in October, and soon after they commenced heading, and continued to eat to the center until it was destroyed. It is the impression of some that a small worm first appeared upon the outer leaves of the Cabbage. Presuming you are familiar with this insect and the remedy for its destruction, or to render it harmless to the cabbage crop, I shall esteem it a favor if you will inform me."

FORESTRY.

COMMUNICATIONS.

LARGE TREES OF CONNECTICUT.

BY DR. GORDON W. RUSSELL, HARTFORD.

In the September number of the GARDENER'S MONTHLY, Mr. Gregory speaks of the old elm tree in Wethersfield, as one of great size. Though often noticed for its great size and spreading branches, its immense hugeness was not realized until I stood near and under it, and took careful measurements on December 27th.

It stands in front of the house of James T. Smith, on Broad Street, on the eastern part of the level plain which comprises this part of Wethersfield. The soil of all this tract is of light loam, very rich and fertile, and celebrated for producing well known garden seeds and onions. The tradition is that it was planted by John Smith, the great uncle of James T., one hundred and fifteen years ago, who one day when riding on horseback, pulled up the young tree, then about as large as a whip stock, and when he arrived home set it out where it now stands. As the family have lived on the same spot for many generations, and the tree bears marks of past age, the tradition concerning it is probably true. It is sound in the trunk, and generally in the branches, though many small and some large ones have been broken by winds and storms of snow and ice. It was struck by lightning two years since which somewhat demoralized it, and probably it will never again show more signs of life and vigor than it

does now. Mr. Manning is correct when he says: "that few ever live much over one hundred years without showing some signs of decay." Except for some extraordinary storm or accident this one may live for thirty or forty years longer.

The circumference of the trunk thirty-nine inches from the ground, the line resting on the ridges, is twenty-two feet five inches. Following the depressions in the trunk at the same height, it is twenty-six feet three inches. This circumference was taken in the waist at its narrowest parts; from this point downwards, the ridges, like great buttresses extend outwards in the roots for so long a distance, that the circumference where they enter the ground measures fifty-five feet six inches. The under side of the lowest branch commences to swell out at a height of four feet and a-half, so that the trunk is unusually short and thick; there are five large branches, the lowest just mentioned, and the highest starting from the trunk at about ten feet from the ground; this is the largest, and is called the south branch in the dimensions given below. Circumference of south branch, sixteen feet eight inches; east, eleven feet six inches; north, eleven feet; north-west, ten feet three inches; west, eight feet seven inches.

These dimensions were not taken at the immediate departure of the branch from the trunk, but at a distance above, which fairly represented the true measurement. The diameter of the spread of the branches from north to south is one hundred and fifty feet; from east to west,

one hundred and fifty-two feet. When clothed with foliage it is truly a magnificent sight, and its great size and height and spread, render it a most noble tree. The circumference of the spread of the branches was four hundred and twenty-nine feet. It is estimated to be one hundred and twenty feet in height. At twenty-five feet from the ground there are twelve large branches.

Nowhere probably, does the elm flourish in more luxuriance and vigor than in this Connecticut River Valley, a most fertile region, full of all advantages for man, and perhaps the most blessed part of the whole earth. There are other large trees in this region of which I may give you an account some day.

THE EUROPEAN LARCH IN MASSACHUSETTS.

BY G., MARBLEHEAD, MASS.

Twenty-four or more years ago the late Richard Fay, of Lynfield, Mass., planted about two hundred acres on his estate with forest trees, among which were the European Larch. In connection with the late Samuel Pitman, a nurseryman of standing, and a personal friend of Mr. Fay, I was informed that the larch trees after growing to timber size had become badly diseased. It would therefore certainly be wise for my fellow citizens of Essex County, Mass., to visit Mr. Fay's plantation before going largely into the planting of the European Larch.

EDITORIAL NOTES.

REFORESTATION.—Chief Justice Agnew, in a letter published in the proceedings of the American Philosophical Society, December, 1878, notices that on his yearly travels over the Pennsylvania Railroad, bare rocky hills become in time clothed with young timber trees from natural or self-sown seeds. The Alleghanies, if left to themselves, would always be forest land.

TREES FOR FIRE WOOD.—If it does not pay to plant trees for "family use" in States where forests abound, it surely ought in those districts where there is no native woodland. The *Greeley Tribune* tells of a Mr. Hall of that town who set out some cottonwood trees around a five acre lot five years ago, and the mere thinnings from these last year from four year old trees,

kept the family in fire-wood a whole year afterward. Such facts as these do more to encourage the growth of forest trees than tons of legislative documents.

THE PINE TIMBER OF CALIFORNIA.—Mr. J. J. Lemmon says in the *Pacific Rural Press*, that the "Red Silver Fir" of the Sierras is *Abies magnifica*, grows 150 to 200 feet and has "valuable" timber. The color of the bark gives it the red name. The "White Silver Fir," is *Abies grandis*, 200 to 300 feet high, but seldom over four feet in diameter; timber white, soft and coarse. "White Fir" is *Abies concolor*, timber "not as good as *Abies magnifica*," "softer and scentless," prized for butter boxes, meat barrels, and similar purposes. The "Western Tamarack" is *Larix Occidentalis*, frequently 200 feet high, free to split, and very strong and durable, hence highly prized.

USES OF AMERICAN TIMBER TREES.—The *Scientific Farmer* says: The butternut is esteemed for the posts and rails of rural fences in America, for troughs for the use of cattle, for corn-shovels, and wooden dishes. Shellbark hickory provides baskets, whip-handles, and the backbows of Windsor chairs. The pignut hickory is preferred to any other for axletrees and axe-handles. The sugar maple is used by wheelwrights, for axletrees and spokes, and for lining the runners of common sleds. Dogwood is used for the handles of light tools, such as mallets, small vices, etc. In the country it furnishes harrow teeth to the American farmer, and supplies the harness of horses' collars, etc.; also lining for the runners of sledges. The mountain laurel is selected for the handles of light tools, for small screws, boxes, etc. It most resembles boxwood, and is most proper to supply its place. Bowls and trays are made of red birch, and when sapplings of hickory or white oak are not to be found, hoops, particularly those of rice casks, are made of the young stocks and of branches not exceeding one inch in diameter.

BOXWOOD.—Sir Joseph Hooker, in his last annual report on Kew Gardens, makes the following remarks on the supply of boxwood:

"For some years past, the supply of this important wood has diminished in quantity and risen in price. It is derived from the forests of the Caucasus, Armenia, and the Caspian shores. The wood of the best quality comes from the Black Sea forests, and is principally shipped from the port of Poti. The produce of the Cas-

pian forests, known in the trade as 'Persian wood,' until last year, was also exported through the Black Sea from Taganrog. This found its way, after the commencement of the war, via the Volga canal, to St. Petersburg. The produce of the Caspian forests is softer and inferior in quality to that of the Black Sea. It is a matter of interest to see whether one result of the war will be to open these Black Sea forests which the Russian Government has hitherto kept rigorously closed. The falling off of the supply has led, meanwhile, to various attempts to find substitutes for boxwood for many purposes. Messrs. Joseph Gardner & Sons, of Liverpool, have introduced, with some success, the American dogwood, *Cornus Florida* and persimmon *Diospyros Virginiana* for shuttle making, for which purpose box has hitherto been in great demand. The diminished supply has also drawn attention to the Himalayas as a source."

It seems to us that some of our friends interested in forestry, might find some places on the North-west coast admirably adapted to profitable box culture. Where the climatal conditions favor, it does not take Box long to grow into profit.

PAPAW BARK.—A correspondent of the *Mobile Advertiser* says:

"The trunk of the papaw would be valuable cultivated for its bark alone. As a fibre it must be far superior to the fibre of jute, and its yield is immense. A grove of papaw trees might be cut down every year, as the many sprouts sent up from the stumps, grow in a single season to from four to six feet in length. A piece of land once set, would last for cutting many years. Who is willing to experiment with the papaw?" And it is further said: "While exploring the Indian mounds of Tennessee for the Smithsonian Institution in 1869, we took up with the remains of a Mound-builder, a string of copper beads that had been strung upon a slip of papaw bark, and the bark was still in a good state of preservation. It was taken from ten or twelve feet below the surface, and from immediately beneath a white oak tree near three feet in diameter."

RED SPRUCE OF THE ROCKY MOUNTAINS.—What are known as common or English namés, give a world of trouble, as there seems to be no end to their number or application. We have most of us settled down to the belief that the "Red spruce of the Rocky Mountains," is *Picea*, *Abies*, or *Tsuga Douglasii*, but now comes Mr.

Lemmon in the *Pacific Rural Press* and says: "*Tsuga Douglasii*, Lindl. Douglas spruce. Black spruce of the Rocky Mountains, and of the California coast and Sierra ranges. A common and often immense tree, 200 to 350 feet high, with a rough, black-barked trunk eight to fifteen feet in diameter. Timber soft but strong, composing the great lumber wealth of Oregon and Washington; cones ovate, three inches long; bracts much exserted, three-parted; leaves light green, arranged in spirals around the hanging twigs."

A WISCONSIN TREE.—"The largest tree in Northern Wisconsin, stands on the land of Richard Bardon, on the bank of the Nemadjin River, a short distance below the mouth of Copper creek, in Douglas county. It is a white cedar, spiral grained but sound, and measures nineteen feet four inches in circumference, two feet above the ground. Its length is estimated to be seventy feet, and what is remarkable, it tapers with great uniformity from the base to the peak, and has not a single branch below forty feet from the ground."

[Does this mean an *Arbor vitae*? If so it is a wonderful tree.—Ed. G. M.]

PINUS EDULIS.—Mr. N. C. Meeker writing from the White River Indian Agency, has the following interesting note on the Pinion or *Pinus edulis*. It may be noted that the White River flows westward from the Rocky Mountains, and is one of the sources of the great Colorado River. It lies on the 40th Parallel of Latitude, and formed part of Fremont's route to the Pacific in 1845, and through whom we were first made acquainted with this valuable pine:

"I don't suppose any of you know what Pinion is. It is a species of pine or cedar, growing in the mountain gulches, and for fire-wood it has no equal in the world, unless it be the 'tallow tree' of Asia. Once at Canyon City, our committee reached the hotel in the morning, well chilled through, and the landlord hustled around and built a fire of a few little dry sticks. I remember I seized some other sticks in the corner and put them on the fire, for I wanted to get warm; but presently the landlord saw it and took off the wood, saying I did not know what I was about, for that wood was Pinion. True enough; we soon had so hot a fire we had to move back.

"There is plenty of Pinion here, and the nuts are delicious,—equal to hazel nuts, but smaller; still, there is none near the agency, and I think

none of the people ever knew anything about it, as being good fire wood. Last fall, I was with a team up the canyon, along a fine road we had built beside the cliffs, and I saw at the mouth of a gulch, a great many pieces of old looking and dried up logs, which I had hauled down, and then we had fires, for it was Pinion.

"A great many of these pieces were two and three feet long, broken square off; others were longer, and there were a good many pieces a foot long, and three to four inches thick, and as heavy as if they had been water-soaked for a thousand years, while all of them had a terrible old, battered look. I judge that when a tree decayed far up the mountains, several hundred years ago, it got moved a little, perhaps by falling rocks, then was thrown into a gulch by some great fall of water, and then the whole was dashed along with rocks, through canyons and over precipices, and finally debouched into the little valley below.

"This wood is easily chopped, and it is as easily split, and I prefer to take as knotty and crooked a log as there is, and smash away at it with an axe, and though the wood is dense, I can break it up into fragments three, four, six and eight inches across, and the waste is a trifle. A saw does not work well, for it pinches; besides a sharp buck-saw does not long remain so. My practice is to have a bushel basket full of such fragments brought into my room, and there it stands on the old hearth, and when the coal fire gets down, I put in a piece as big as my hand, and it burns right

away. I fill the stove full of coal just before I go to bed, and so there is a fire all night, and water seldom freezes, and as my bed is close to the stove, and as I have a blanket over my head, I do not feel the terrible wind that blows out of the canyon from sunset to sunrise, though it whistles through the crevices of the logs as if it would like to cut one in two.

"Just before daylight, I get up, shake the grate, open the dampers, fill the lower part of the stove with pinion chunks, place a kettle of water on top, then fill up with coal, and hop back to bed, and, sir, before I touch my pillow, that pinion has blazed up, and in less than a minute the stove is in a flutter, the flames rush like the escape of the steam from a railroad locomotive, and in the space of ten minutes the stove is red hot, the room glows with a summer heat, remaining so for a full hour, and we rise and dress at our leisure.

"Down at the open gulches of Powell Valley, plenty of Pinion is found. I remember I brought home in the wagon a couple of sticks, three feet long and four inches in diameter, lying [among sage brush, and they had been there so long that probably a hundred rattlesnakes had crawled over them, say from the twelfth to the nineteenth century; and getting home late of a frosty evening, I put these sticks on a low fire, good enough for a woman to sit and knit by, and in ten minutes we had a fire that Shadrach, Meshach and Abednego would stop to look at twice. This is all I know about Pinion."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CARNIVOROUS PLANTS.

BY PETER HENDERSON.

In the February number, Mr. C. W. Seelye in reply to my article on this subject asks if by what I say, I mean to convey the idea that the *Dionaea* is not carnivorous. I reply to this, that the results of my experiments went to confirm that impression, not only as regarding the shell snails of Mr. Smith, but also our own fly "feeding" of them, for as I have clearly stated, the

result showed that no improvement was discernable in those that had been "fed," over those that had not been "fed." Mr. Seelye further says that from my remarks he is left in doubt, "whether the plants did in any sense assimilate or feed on the insects." I too am left in doubt in this matter except to believe that if they did "assimilate food" their digestive apparatus was in some way defective, for the "food" certainly did not add to their size or beauty. Mr. Seelye mis-quotes me when he says I said "each plant was fed daily for three months;" if he will look again he will see I did

not say so, I said the 100 plants—meaning such of them of course as showed to be in condition to receive it were fed almost daily, the point with us being to place the insect in the trap when its indications showed it to be in the proper condition to close on it. Any one who has seen the *Dionæa* growing in a healthy condition knows that each plant in the course of three months would develop from ten to twenty of these leaf traps, but developed of course, as the plant grows,—not all at once.

That being the case in our experiment, there was never at any time any "accumulation" of the insects, as Mr. Seelye from his mis-reading of my article assumes there was. Then he triumphantly says: "If the insects remained upon and about the plants unappropriated by them, this ends the whole question." But unfortunately for the "ending of the question" the insects did not remain, they "dissolved," but whether their dissolution was due to one of nature's laws that we know something of—decomposition—or whether they were "assimilated" as Mr. Darwin would say, leaves the question, as far as my judgment goes, yet an open one. All that has been said yet by our experiments is only to flatly contradict those made by Mr. Francis Darwin as regards any improvement shown by such "feeding."

It would be edifying to know to enable comparison to be made, what means Mr. Darwin had for making his experiments, or how they were conducted. We have some knowledge of how such experiments are usually conducted by amateurs, and we have rarely seen them to be such as to give professional horticulturists much respect for the deductions they draw.

The question whether these plants thrive better with such "food" is not a subordinate one as Mr. Seelye says it is. Darwin gives it as proof of his extraordinary theory, and if experiments fairly made will show that such treatment improves their growth, over those not so treated, then he has gained a strong point. Our experiments made, we think under the most favorable conditions, and in the most careful manner showed conclusively that no change or improvement took place. Mr. Darwin had asserted that his "meat fed" plants were much better than those "unfed," and our trial was made solely in the interest of science and with the sole desire to get at the truth; and for that reason not wishing to place my single experiment against such an authority as Mr. Darwin, as having set-

tled the question, I offered then, as I offer now, to send without charge, a sufficient number of plants of the *Dionæa* to any one who wishes to test the question, having the proper means to try the experiment.

Professor Beal, your other correspondent on this subject, raises what seems to me to be a very trifling objection to our experiment in saying that Mr. Francis Darwin's trial was with the *Drosera rotundifolia*, while ours was made with the *Dionæa muscipula*. But Mr. Darwin says that both these plants are insect eaters, and inasmuch as they are near relatives of the same family (*Droseraceæ*), surely if one improved by being "meat fed" it was fair to presume the other would. Professor Beal further says that though he tried to feed his tomatoes through their glandular hairs with beef soup, but damaged them thereby, it probably having been too strong, he does not think that such failure has overthrown Mr. Darwin's theory. In this I entirely agree with him. Such an experiment would never be likely to overthrow or confirm anything.

The question whether or not certain plants are insect-eating is not yet settled; that the wondrous rat-trap like structure of the *Dionæa* leaf should make men jump to the conclusion that nature designed them to eat the insect that they caught is not to be wondered at; but that it is certain that after catching their prey they devour them, we do not think has been proved by Mr. Darwin or any one else. Nature shows many such instances where insect life is "trapped" by plants. The gummy exudations from scores of different species of plants are covered with insects, the butterfly and bumble bee are found impaled on the spines of the thistle and the burdock; the pond lily, *Nymphaea alba*, spreads its petals in the sun light, and when night comes and closes them, scores of insects are often found imprisoned in a single flower. The *Physianthus albens*, which Professor Thurber has well named the "cruel plant," catches almost every unfortunate moth or butterfly that tries to sip the nectar from its flower cup, and dozens may be seen dangling dead and dying from a single plant; but are these trapped for the purpose of being "assimilated" by the plants? Certainly not, yet when we find the *Dionæa* closing on a fly and holding him there, (it will close on and hold a wad of moist paper or cotton exactly the same), it is said that it kills to eat.

CARNIVOROUS PLANTS.

BY THOS. FORFAR, WOBURN, ONTARIO, CAN.

In the February number of the *GARDENER'S MONTHLY* I see that Mr. C. W. Seelye and Prof. Beal criticise the result, or rather the statement of the result of Mr. Henderson's experiments on *Dionæa muscipula*. To my mind these experiments of Mr. Henderson's are not entirely satisfactory, from the fact that he appears to have tried them in one way only: that is by feeding the plants with flies, &c., and comparing them with plants not so fed. Now the Messrs. Darwin tried a vast number of experiments in many different ways; still they relied to a great extent on litmus paper as a positive proof that the food was consumed.

It so happens that we have growing wild in this neighborhood thousands of *Drosera rotundifolia*, and I have amused myself in trying a few experiments and closely watching the habits of the animal (as Mr. Darwin almost makes it out to be), in its native home. I first procured a few plants and potted them. After they had become thoroughly established in the pots, I commenced to feed them with insects of different species, large insects dead and smaller ones alive. Insects as large as the common house fly must be killed, as their strength is greater than that of the glandular hairs of the trap, and they would escape; but small insects such as mosquitoes if once in the trap are forced to stay there. Whenever I fed a dead insect to a plant I placed another of the same size and species in some secure and similar situation. By this I found that it took exactly the same time for the atmosphere to consume an insect as it took the *Drosera*, providing the temperature and moisture were the same. I then tried the same experiment on the wild plants with the same results. I next examined the wild plants and found that about fifteen per cent. contained insects and their remains, about twenty-five per cent. contained extraneous vegetable matter, the remaining sixty per cent. nothing. I could see no difference in size or luxuriance of growth between those containing insects and those containing vegetable matter; but those containing nothing whatever were generally smaller. This I accounted for by supposing that the latter were younger plants, and had neither the surface exposed to catch nor the strength to hold extraneous matter that the former had. I have read somewhere that if a piece of wood or other uneatable substance be

placed within the opening of the glandular hairs of the *Dionæa* the hairs would immediately close on the substance, but on this being repeatedly done this closing would cease, the plant having found from experience that hard substances were unpalatable. This I tried with the *Drosera rotundifolia*, but whether my plants being Canadian were sharper, or that they were not in the habit of doing such outlandish tricks, they could not be fooled in that way, no movement of the hairs being perceptible. A small insect placed within the opening was completely entrapped but I could see no movement of the hairs whatever. The insect, if alive, would die in from twenty minutes to half an hour. Death appeared to take place by suffocation from the clammy fluid exuding from the glands—similar to what would take place if the insect had been covered with oil or honey.

From this and other simple experiments, and from what I can find to read on the subject, I have come to the following conclusions:

1. That the Messrs. Darwin are correct in saying that the *Drosera rotundifolia* is carnivorous.
2. That Mr. Henderson is correct in saying that no perceptible difference could be seen in the plants he fed and those not so fed.
3. That Prof. Beal's idea that petunias, myrtinias, &c., are carnivorous is also correct.
4. That all plants are carnivorous.

The theory by which I make everybody right and nobody wrong is this: We know that all plants absorb food in the form of carbonic acid, ammonia, &c., through their leaves. We also know that animal or vegetable matter such as beef tea, dead insects, or decaying leaves if allowed to become putrid, throw off a large amount of ammonia, &c. Now if we place any such putrid substance in sufficient quantity in close proximity to any plant, we know that such plant will be benefitted greatly. I apprehend that if Mr. Henderson fed each of his *Dionæa* plants nearly every day he must have removed the insects given the day before; consequently it could have given off little if any of its gases. Or perhaps he only examined the plants each day and replaced such insects as had decayed. If such were the case each plant would only have received the full benefit of the gases from probably four or five insects during the three months of trial. In either case the benefit would be imperceptible.

In Mr. Darwin's test by litmus paper it is quite probable that the reception by his *Droseras*

of the gases given off by beef tea, would cause an acid reaction in the leaves of the plants.

If Prof. Beal had made a stand directly under the leaves of his plants, and placed putrid beef tea on that stand, he might have noticed considerable difference in the growth of his plants. The fresh beef tea placed directly on the leaves clogged the pores, hence the damaged appearance.

In conclusion, sir, I am well aware that facts, not theories, are what the GARDENER'S MONTHLY requires. Still theories are always the forerunners of facts. I am also aware that my theories or ideas are crude; but if they are wrong some of your able writers will soon dispel my illusions, and I shall be well repaid by the knowledge I gain. On the other hand if any part of them be correct, it may help to arrive at the truth, and at the same time entertain your readers. I am sure I have spent many a pleasant hour in the examination of the *Drosera*, and any of your readers can do the same, as the plants are quite common and can be had for the cost of collecting. As a means of arriving at the truth I would suggest: 1. That the experimenter disabuse his mind as to the correctness of any theory whatever. 2. That a thorough microscopic examination of the structural peculiarities of the *Drosera* family be made. 3. That all tests made on the plants with food extend during the entire life of the plant. 4. That the results of different foods be noted; also the chemical composition of these foods. 5. That a chemical examination of the soil in which the plants are grown be made both before planting and afterwards.

[We have thought proper to allow a great deal of latitude to our correspondents, and have let them have their say on this question exactly in their own manner and way, without a suggestion or alteration of our own. We cannot now resist the temptation to say that Mr. Forfar's opinions are precisely ours. Mr. Darwin's views have suffered much from the hands of friends who have dealt in the sensational in science. Every one now knows that leaves absorb carbonic acid, and no gardener who has ever grown plants in the heat from a dung bed, and compared their amazing growth with that of plants grown in other artificial heat but must know that they can and do absorb nitrogenous matter in the same way. To us the chief value—and it was great value—of Mr. Darwin's work was that for the first time we had opened to us a view of the manner in which

the work was done, and especially in connection with those plants which had sensitive organs. But we could never see why this power in plants should be styled carnivorous in any special sense, any more than that the grape should be specially carnivorous because, as old gardeners tell us, it loves a dead carcass when buried near its roots. We have little doubt but that if some one would try 200 *Dionæas* or *Droseras* in a dung bed, and 200 in an ordinary greenhouse, supposing the temperature and other conditions to be the same, the former would be found as "carnivorous" as any one could expect.—ED. G. M.]

MR. HENDERSON'S EXPERIMENTS.

BY PROF. C. V. RILEY, WASHINGTON, D. C.

I have read the account of Mr. Peter Henderson's interesting experiments with *Dionæa muscipula*, published in the MONTHLY, and reproduced in many other horticultural and agricultural papers.

In a recent lecture delivered before our District of Columbia Horticultural Society, on the relations between insects and plants, I took occasion to refer to these experiments; but as the lecture was not published, permit me to publicly express my belief in your columns, that, notwithstanding the care with which the experiments were made, the period covered by them was too short to give much weight to the conclusions arrived at, seeing that these conclusions are opposed to those of many other careful and painstaking experimenters who have studied different insect-catching plants. As a practical gardener, Mr. Henderson will not deny that many plants with tender foliage may be nourished, and are, in fact, frequently nourished by the application of liquid manure to their leaves, and this fact being admitted, it is reasonable to suppose that a plant like *Dionæa*, which has a special contrivance for obtaining animal matter, and special glands for digesting and assimilating it, should still more fully benefit thereby.

The conclusions of Curtis, Canby, Dr. Burdon-Sanderson, Hooker, the Darwins, Reiss, Kellerman, Von Raumer, Mrs. Treat and others cannot be so easily upset when they confirm that which seems so plausible; and I would suggest to Mr. Henderson that if he should continue his experiments during a longer period, he would in time, discover a decided difference in favor of the insect-fed plants, or

rather in the plants propagated from them. It is not probable that *Dionæa* will differ materially from *Drosera*, the species experimented with by the younger Darwin.

SCIADOPITYS AND OTHER JAPAN PLANTS.

BY PROF. C. S. SARGENT, CAMBRIDGE, MASS.

Mr. Thomas Hogg has placed me under no small obligation for the information he has given in regard to the first introduction of *Cercidophyllum*. I failed to notice this plant in his brother's exceedingly rich and interesting collection of Japanese plants, and if I had ever heard of its introduction the fact had entirely escaped my memory. Mr. Hogg will add to the obligation I already feel if he will publish some details of the growth and hardiness of his brother's plant, and whether it can be expected to realize the expectation which have been formed in regard to this tree.

"Thanks to Col. Clark, President of the Massachusetts Agricultural College, I received some years ago, a supply of seed of *Schizophragma*," is the sentence in which I am made to claim "by inference" that Col. Clark first introduced this plant. How I imply it is not explained, and certainly nothing was further from my thoughts than to claim that Col. Clark had first introduced a plant of which I had seen a specimen in the Parsons' nursery at least a year before Col. Clark ever went to Japan.

As for *Sciadopitys*, it was introduced, if I mistake not, by Mr. Fortune in 1861, and when I urged on Col. Clark, before his departure for Japan, the importance of securing a large supply of seed of this tree for general introduction over the country, we were looking at a specimen in my garden over five feet high.

[Seeds of *Sciadopitys verticillata* were introduced by Commodore Perry's expedition to Japan, during President Fillmore's administration, and plants from these seeds raised by Mr. William Saunders of the United States Experimental Grounds were widely distributed. A plant from this lot is now in view from the window while writing.—ED. G. M.]

NOTES FROM WASHINGTON TERRITORY.

BY FANNIE E. BRIGGS.

We have now been nearly a year in this new land, and of course have observed all changes with interest. We found the spring like those

of the East, a fickle season, permitting the sowing and planting of hardy grains and vegetables somewhat earlier, but affording no like advantage to tender things. The summer was delightful. Excepting a few days in June when a hot wind prevailed, there was no uncomfortable heat. The nights are always cool, and such mornings! So calm and soft, yet so bright and fresh and invigorating. I have breathed the air from the Atlantic to the Pacific, but I never knew anything like them elsewhere. Who is it that says of a clime, that we live

"Where simply to feel that we breathe
Is worth the best joy that life elsewhere can give."

It may be a low kind of enjoyment, but these lines recurred perpetually as the sun rose in glory above the dark firs and a new, bright day began.

The autumn was not so pleasant. There was no frost till October 22, but rains began early in September and continued with little intermission until December. The winter is said to be an unusual one. Colder, with less rain, more bright days and more snow, but there has not been more than three or four inches of snow at any time, and many days are warm and spring-like.

The soil is poor in comparison with the rich prairies of Iowa, but probably as good as much of New England, and improves with proper cultivation. The fine wheat of this region is too well known to need mention. All ordinary vegetables are satisfactory in quality and quantity; but tomatoes and such heat-loving things failed entirely this year. I have seen a few good patches of corn, but the soil must be well prepared, the location favorable, and the variety an early-ripening one.

Apples, pears, plums, cherries, and all small fruits are excellent, and peaches very fair. The plums are especially fine, and we hear nothing of curculio, or any insect-pests, but a curious aphid-like insect burrows in the skin of some of the best apples.

Of wild fruits the first to ripen is the "Salmon-berry," a *Rubus* with trifoliate leaves, crimson flowers, and large amber-colored berries. *Rubus Nutkaensis* abounds, its berries like the mulberry, *R. odoratus* of New England. There is a *Vaccinium*, bearing scarlet berries, more acid and lively in flavor than most huckleberries. *Gaultheria Shallon* is a beautiful little shrub, and grows everywhere, but its fruit is not equal to the black or blue huckleberries of the moun-

tain. It is known by the Indian name "Sallal." Serviceberry is plenty, but the bears monopolize the fruit. There are black raspberries in some localities, but the blackberry is the best and most abundant of all wild fruits. It is a running variety, fruit rather acid but agreeable, and continues in bearing for six weeks.

The dark fir forests are enlivened in spring and early summer by several handsome flowering shrubs. Some already mentioned—Juneberry, *Rubus Nutkaensis* and *Gaultheria Shallon* are all handsome. The beautiful red-flowering currant can hardly be overpraised, and the large white flowers of the dogwood could have no better background than the dark firs. A very fragrant and delicate *Philadelphus* is abundant, and a *Spiræa* with large clusters of feathery white flowers. There is a beautiful honeysuckle, climbing vigorously, and continuing long in bloom. Flowers in large clusters, orange-scarlet, slightly bilabiate, tube very long and slender.

In smaller flowers I must own myself disappointed, missing almost all old favorites, and finding little to fill their places. Half a dozen species of *Convallaria* and *Uvularia*, *Trillium grandiflorum*, *Diclytra eximia*, *Aquilegia Canadensis*, two or three Orchids, none of them showy, and the pretty little *Trientalis Europæa*, are about all I have met with. I find but one violet, a small yellow one, and the wild rose is poorer than I supposed any member of that royal family could be. The flowers all have a pinched and twisted look, as if imperfectly developed. There is a pretty lily, in habit like *Canadense* or *superbum*, in size midway between the two, flowers rather pale yellow with few spots, segments not as much reflexed as in most of the drooping lilies, axils of leaves bulbiferous. The willow herb, *Epilobium angustifolium*, is pretty, but so abundant as to be considered a nuisance, and is known as "redweed." Ferns abound, and some attain a large size. *Asplenium filix-femina*, and *Aspidium spinulosum* grow four or five feet in damp places. *Pteris aquilina* is called "summer fern," and considered the worst "weed" of the region. There are great patches of it five or six feet high, and I measured one that grew by a little brook—and there were plenty more as large—which was nine feet five inches in height. *Polypodium falcatum* and *P. intermedium* are quite common, growing in the moss on trees and bogs, and are known as "wild icorice."

The falling of trees seems a commonplace matter enough, especially in a region where it is so constantly occurring, but it never loses its interest. In clearing land the trees are not cut down but burned off by firing at the base. Many fall, but many also remain standing, after burning away to a mere shell. Many others, loosened in the ground by age and decay, lean against their neighbors, or stand in such threatening attitudes that one involuntarily hurries past them. But, like the flowers,

"They know their time to go."

Some night the south wind rises and roars in the tree tops, and these trunks begin to fall; the nearer with a crash and thundering thud, the more remote with a sound exactly like the report of canon, and sometimes at such short and regular intervals as to sound like minute guns. The wind in the tree tops has always a solemn sound, doubly so among these mighty firs; but we are near enough to the ocean to think often of those who sail thereon, and I never listen to these sounds without thinking

"How the same wild gust will toss the ship,
And arouse the mighty sea,"

and fancying I hear the roar of the waves and the signal guns of ships.

EDITORIAL NOTES.

THE ARAMINGUS BEETLE.—At a recent meeting of the Germantown Horticultural Society, Mr. Woodruff the well known florist, exhibited living specimens, and gave in detail an account of its ravages. As stated by Mr. Henderson recently, it was a serious enemy to the rose, as Mr. W. had found it equally a foe to geraniums and many other plants; the begonia especially seeming to be a favorite. Mr. Woodruff in his remarks, paid a high compliment to the usefulness of Mr. Henderson's paper in warning florists against the enemy.

CORN SMUT.—One of the most valuable contributions to practical science is from Prof. Kedzie's pen, and published in the monthly report of the Kansas State Board of Agriculture for Dec. '78. Contrary to almost universal belief, it is found that corn smut is not poisonous to cattle. The fungous growth on Indian corn commonly known as "corn smut" is the work of *Ustilago Magidis*.

CHEAT IN CALIFORNIA.—We have to be careful what we understand when a common name

is used, for instance the "cheat" of the Eastern farmer is *Bromus secalinus*; but when a farmer in California talks of "cheat" we are to understand that the *Lolium temulentum* is referred to. It is hard to learn Latin names sometimes; but if people would try to do so, it would save a great deal of misunderstanding and quarreling.

POTATOES INSIDE OF POTATOES.—The past season seems to have brought this phenomenon to more than usual public notice. In the Newburg, N. Y., *Daily Journal*, Mr. J. Smith notices some as being on exhibition there. The way in which these are produced, as Mr. Stauffer suggests, is very much like the "growing inwards" of a toe-nail. The stolon or thread which usually pushes out from the eye, and bears the tuber, takes the inward direction instead, and thus the tuber is formed on the inside of the old one.

PRESERVING FLOWERS IN SALT WATER.—We see going the rounds of the papers, a paragraph to the effect that Prof. DeCandolle has discovered that salt water will do as well as alcohol to preserve flowers or fruits for any length of time. This statement is likely to mislead. In a copy of the original paper kindly sent to us by Prof. DeC., we note that he distinctly says that mere salt water will not do; but that it must be boiled seawater.

DICLYTRA AND DICENTRA.—A correspondent dissents from our suggestion that now it is certainly known that the botanist Borkhansen originally wrote *Diclytra* and not *Dicentra*, we ought to go back to the original name.

It seems to us that botanists when they name plants, are not bound to tell why, or from what they make the name; indeed few of them ever do, and at best we often have to guess at the etymologies. If this botanist had not happened to have incidentally mentioned the "derivation from a greek word" which has no existence, no one would have thought of objecting to *Diclytra*.

If a man chooses to found a family under the name of Smythe, when he might have said Smith, we must admit it is as good a name as the other, and his successors would be thought trifling to alter all their names because "he ought to have written Smith" in the first instance. To our mind a botanical name that means nothing is as good as one that means much; and as a principle, we favor the law which insists on the "original" name.

NAMES OF PLANTS.—S. C., Hamilton Co., Ohio, sends three small leaves for name. It is not possible to do this from such slender materials. No. 1 may be a *Ruellia* or *Beleperone*, 2 and 3 are *Echeverias*.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

VINDICATION OF THE PLANT PATENT.

BY JACOB MOORE, ST. LOUIS, MO.

This measure is alleged to be impracticable by its opposers, but the objection is not well founded. If the varieties could be identified the rights of the producers could be protected. That they could be identified is evident from the fact that exotic sorts are identified. The selling of old sorts under new names has been frequently practiced, but such frauds are invariably detected, sooner or later, although the perpetrators escape punishment. But if they attempted to swindle in this way with protected sorts they would soon be prosecuted by the introducers, and the adoption of synonyms would thus be

prevented. They would not dare to sell them under their real names, or claim them to be protected under new ones, because so doing would render them liable to immediate detection and the infliction of a severe penalty, as any person might be an emissary of the owner of the protective right. The taking of orders for plants of new sorts by the agents of dishonest nurserymen and dealers, and supplying others in their stead under the names of those ordered has been practiced to such an extent as to make the terms tree agent and swindler almost synonymous. The protection against this kind of fraud, which the proposed enactment would afford the public, furnishes an argument of great weight in its behalf. Although Mr. Eugene Glen, of Rochester, N. Y., has preceded me in making this argument, in a future com-

munication I propose to show that it is capable of application also against his scheme to protect by act of copyright alone.

Endless litigation is another objection. It would be optional with introducers to litigate. To prevent infringement by the trade would be the principal requirement, which there is good reason to believe could be enforced. Desultory infringement among the people would not materially affect them. The enactment undoubtedly would be considered a great innovation, but when it became apparent, by means of litigation, that originators had rights of property in their productions which must be respected, and that the public was protected in the purchase of those productions, such litigation would show itself to be far otherwise than an unmitigated evil.

The objection has been made that if an individual bought plants of a new variety he would have a right to make such disposition of them as he chose. The objectors overlook the fact that under the law proposed the right to use the variety for a certain purpose would not be bought. A manufacturer may own all the material and appliances for making a patented device, but the law forbids him to do so, even for his own use. The owner of a printing press is forbidden to publish the simplest pamphlet protected by copyright. All wooded plants once set out to produce fruit or for ornament soon become unsaleable apart from the land, or too large for removal, therefore the exclusive right of the introducer to disseminate to be grown would not interfere with the inclinations of the mass of purchasers. It is commonly asserted that the best way to remunerate originators of valuable productions is to pay them sufficient amounts from the public treasury. But the value of new varieties for general cultivation could be determined by no committee, however competent, before public trial and dissemination of them; hence the producer of a new apple or pear would have to wait fifteen to twenty years, or more, before its value could be thus ascertained and he be recompensed therefor. Then is it to be supposed the government would pay anything for the origination of a new flowering or ornamental plant? If a patent or protective letters were conferred for a new sort the producer would have an opportunity to obtain compensation immediately by the sale of his exclusive right, or within a comparatively brief period by propagating a stock of plants for sale.

[At Mr. Moore's urgent request we have de-

cided to insert this communication, chiefly to show that those who are pressing this matter have not advanced beyond the old difficulty. We have asked those who contend that an intelligent board at Washington could define a "new" fruit, to give us a specimen of their own definition. If Mr. Moore will please place in language a "definition" of what is to constitute the "novelty entitling to protection" in the *Amsden*, the *Honeywell*, the *Alexander* or some early peaches, as an illustration, we might proceed with the further discussion of the subject. We have asked for this preliminary, but it does not come. It is a waste of time and space to talk of protecting a definition if the article be undefinable.—ED. G. M.]

FRADULENT PRACTICES.

BY EUGENE GLENN, ROCHESTER, N. Y.

I am quite as strongly opposed to "patent plants" as you can be. At any time you desire I will cheerfully take the negative on this discussion, and point out wherein and why they would result disastrously.

The "copyright upon the names of new varieties," advocated by me a year ago, differs as widely in its working and results from plant patents as does the east from the west; and until some one will venture to tell the public wherein and why it would be found impracticable, I shall feel justified in believing and asserting that such fears as to it are without foundation. That measure proposed in part to encourage artificial hybridization; but it was mainly directed to the prevention of frauds in the dissemination of new varieties. I know these frauds to be wide-spread, and by no means confined to traveling agents; but judging from your remarks, made at the Nurserymen's Convention held in this city last Summer, when the subject of frauds was under consideration, I was constrained to believe that you did not realize the extent to which the innocent public are being swindled, as well by dealers and agents as by nurserymen, who through long continued advertising and distribution of handsome catalogues have secured the rank of respectability. The idea which we often hear urged that people will avoid all risk by ordering directly of a nurseryman, is absurd as well as impracticable. Absurd because the masses cannot know which nurserymen "carry little hatchets" and which

do not; impracticable because many have not the intelligence to order directly, even if they could afford to pay separate packing and freight on the little lots which they are able to buy at one time. The extent to which the agency system has taken hold of the business is well illustrated by the fact that the most extensive nursery firm in the country, and one of the most careful as to the correctness of its varieties, finds it necessary, notwithstanding its liberal advertising, to send out canvassing agents in order to secure its fair share of the trade.

I agree with you that the passage of resolutions will not cure this evil, nor will the shutting of the eyes of honorable members of the trade to its existence do it. A bold discussion of it by horticultural societies and nurserymen's conventions may scare off some who now practice it; if not it may develop a wiser and better repressive measure than has yet been suggested. If so I shall be very glad to see the one proposed by me give way to it.

EDITORIAL NOTES.

WRONG NAMES TO PLANTS.—A correspondent calls attention to the many misnamed plants in public gardens as well as private, and gives many instances from the public gardens at Washington, such as *Osmanthus ilicifolius* for the *Calebogyne* and many others. It is much to be regretted that more attention is not given to these points. We have rarely seen a public garden where these errors did not exist often to a degree which seemed inexcusable. It probably often arises from the leading one in authority having too much to attend to personally; and much has of necessity to be left to subordinates, who often do not care for much beyond their wages. But it is well that these public places should be reminded of their imperfections, and our correspondents' hints about it may set some of these gardeners to amending their ways.

THE ADAMS EXPRESS COMPANY.—It is worth while reminding our readers, that when they send the editor any thing that they wish to prepay by the Adams Express, the package should always be marked "Paid through to Germantown," otherwise this model Company is tolerably certain to insist that the sender only paid it in part. Of late years we have refused all

such boxes, though it may have subjected us to the appearance of smallness on the part of the sender, who really believed they were paying all charges. Numbers here have not the nerve to risk this odium. Young ladies at our boarding schools who have sent to them parcels from parents and friends have to pay out of their slim pocket money for parcels, which their friends suppose paid in full, and the young people wonder why it was only "partly paid" but say nothing; and so the custom goes on. The Adams Company may have very good reason for this, and so far it is no business of ours; but we want to say to our readers that it is not necessary to mark "paid through" on anything that comes to us from Boston, by the New York and Boston Despatch Company, or the Delaware and Lackawanna Express from New York.

After a year's experience with these lines, we find packages promptly delivered, and we have no extra sum whatever to pay, and the charges of what we send by them moderate.

AN AWFUL WARNING.—Our readers may remember that we did not take kindly to the charge of the New York *Tribune*, that there was "not one" of its exchanges that did not almost live by "stealing" from its columns. And now we have the melancholy duty to announce that from that day no *Tribune* has come to our table; it is of course a terrible punishment, and an awful warning to those who "steal." We have not yet wholly made up our mind to stop publishing the GARDENER'S MONTHLY with the next number; we may try to worry through to the end of the year; but our readers will appreciate the terrible strain it must be on the Editor to struggle on without the *Tribune* to "steal" from. Oh! My!

FERN PILLARS.—We have had several inquiries as to where to get the beautiful fern pillar noticed in our last can be obtained. As there stated it is the invention of Mr. Tyerman of England, and we only offered it as a test on which to form some suggestions. Not exactly that pattern, but others for the same and similar purposes may be found in the collection of the "Moorehead Clay Works" of Philadelphia, a beautiful catalogue of which is yearly issued, and which we suppose may be had on application.

PROGRESS OF HORTICULTURE.—The best and most flourishing nurserymen, are those who endeavor to increase public taste among the people

with whom they live, Rochester is much favored in this respect. Before us are three able articles in daily papers of that city on various topics of general horticultural interest, from P. Barry, H. E. Ellwanger, and W. S. Little. They tell of public gardening, fruit culture for small gardens, and shrubs for small places.

STEPHEN HOYT.—At the good old age of seventy-nine, passed away in the last month of February, one of our best known and most respected nurserymen, Stephen Hoyt of New Canaan Connecticut. He was like so many of our best nurserymen, drawn into the business from a natural love for fruits and flowers, and not from an early apprenticeship to the business, for he was originally a school-master, and subsequently turned his attention to mercantile pursuits. In his thirty-seventh year he changed from city life to a farm which he purchased from the Selleck family, after whom the well known pear of this name was called. He commenced the nursery business in 1848. In 1856 the present firm of Stephen Hoyt & Sons was established, and we suppose will be continued under the same title as heretofore. Mr. Hoyt took an active part in the management of local affairs; and besides served in the legislature of the State at a time when it had not become fashionable to leave the selection and nomination of public servants to the least intelligent portion of the community as now. Mr. Hoyt's death was regarded a public calamity to New Canaan, for the whole community seemed to turn out at the funeral to do honor to his remains.

ANDREW M. EASTWICK.—Among the recent deaths is that of the above excellent gentleman, well-known as the purchaser of Bartram's celebrated botanic garden from the son-in-law and grand-daughter of America's early botanist. The lovers of Arboriculture, and indeed the students in many branches of our early history, owe him thanks for the care with which everything relating to the great botanist has been preserved. Mr. Eastwick, like so many of Philadelphia's most enterprising citizens, commenced life in humble circumstances, and by the death of his father was left an orphan at an early age. His excellent mother, to whom he was ever devoted, gave him all in her power, the best education she could afford, and a love of honest independence that never failed him in after-life. From a zealous apprentice to a journeyman

careful of his employer's interests, he rose to the distinction of inventor, partner, contractor, and we may say finally millionaire. The events of the war, as in so many cases, made great inroads in this latter distinction, much to the regret of his fellow citizens, as he was public spirited as he was wealthy, and the whole city would have prospered by his increase in success.

But we have to do chiefly with the Bartram Gardens. These were popular as a resort for young Philadelphians, and as a boy Mr. Eastwick was a frequent visitor and lover of them, and in his boyish dreams often imagined that he might some day be rich, and if so and could buy them he would. A contract with the Russian government to build and equip the railroad from Moscow to St. Petersburg was very successful, and money remitted to Philadelphia invested in mortgages. It so happened that his agent had placed some in this way on the Bartram Gardens, and thus when the Russian business "campaign" was ended, and Mr. Eastwick returned to his own land, the descendants of the great botanical patriarch, aged and childless, were only too glad to sell entirely to one whom they felt would care for it, the whole property of their ancestors. A new house was built for the new proprietor's own family rather than destroy the dwelling which the old botanist built literally with his own hands, and which still stands, and still bears the famous Unitarian inscription, which in those early times made him "worse than an infidel" to his zealous religious friends. Every tree, every walk, every vine-clad arbor was preserved with jealous care; and the lovers of the great botanist have been at all times permitted to see and examine them. Mr. E., however, felt what few could feel as he knew, that in the wonderful growth of Philadelphia, the arboretum grounds could not remain a garden forever; and it was therefore no use to plant new trees to take the place of others as they decayed year by year. Some have died out in the fullness of a good old age. In another fifty years there will probably be few of the grand old remains of Bartram's planting left,—and ere another century, paved streets, brick buildings, and a little city yard will cover the ground where so many botanical loves lie buried. But we all like to keep off these decrees of fate from affecting these famous spots as long as possible, and in this good work, A. M. Eastwick, was one of the botanist's best friends.

EHRENBERG.—This distinguished botanist, whose decease occurred on the 28th of June, 1876, forms the subject of a memoir, with portrait, in the *Popular Science Monthly*, for March.

MR. JAMES TAPLIN.—This gentleman so long known as superintendent to Mr. Geo. Such, South Amboy, N. J., has decided to cast his own bread on the waters, and has taken the property advertised in our last magazine. It is remarkable by the way, that scarcely any nursery property advertised for sale or to rent in the *GARDENER'S MONTHLY*, during the twenty years of its existence, failed to find the man that was wanted, and the publisher feels himself a happy medium in consequence.

MR. MANSFIELD MILTON.—Our estimable correspondent has purchased an established florist's business, at Youngstown, Ohio, where he will soon personally remove, and attend to it. We are quite sure that the readers of the *GARDENER'S MONTHLY*, who have so often profited by his intelligent pen, will wish him every success.

HONORS TO A HORTICULTURIST.—The Government of Belgium, has voted 8,000 francs to the fund for a memorial to the late Louis Von Houtte, the distinguished nurseryman.

KENTUCKY HORTICULTURAL SOCIETY PROCEEDINGS.—From J. Decker, Secretary. This eminently alive society has issued its volume of Proceedings for 1879, which contains numerous essays of special interest to Kentucky Horticulturists. Mr. Thos. S. Kennedy, of Louisville, is President for the present year.

FLOWERS AND FERNS OF THE UNITED STATES.—Prof. A. E. Foote kindly says in his *Naturalists Leisure hour, and Monthly Bulletin*:

"Thomas Meehan's great work on the 'Native Flowers and Ferns of the United States,' is being pushed forward with more vigor than any other botanical work of the present time. The well known reputation of Prof. Meehan, who has just been re-elected Vice-President of the Academy of Natural Sciences of Philadelphia, is a sufficient guarantee of the scientific accuracy of the work. No lovers of ferns or flowers should be without it." We copy in order to say that the series finished, has proved so acceptable to the public, that another series has been prepared, and will appear about mid-summer.

THE ART OF PROPAGATION.—By J. Jenkins.—Nurserymen are often at their wits end for time to answer the numerous letters, and questions put to them about propagating common nursery plants. Mr. Jenkins has put all he would say in print, and any one can get it for half a dollar. It is a good idea.

FLORA OF THE MIAMI VALLEY, OHIO.—By A. P. Morgan.—We are indebted to some unknown friend for a copy of this little work. These local catalogues are of very great value to the Editor, and are always thankfully received.

FOREST TREE CULTURE ON KANSAS PRAIRIES.—By Max G. Kern.—While eminent men are endeavoring to prove that trees are not found on the Western prairies because the chemical constitution of the soil cannot possibly sustain them; and well meaning persons are showing that trees never will be planted unless Government, State, or National, creates lots of offices, and pays swarms of office holders more than the trees ever will be worth to raise them; practical men and public spirited corporations are quietly doing, and doing well the "impossible" thing. On a ride across Kansas last Summer, the writer of this was delighted with the numerous shady groves and belts of trees that seemed to have sprung up as if by magic, since his last visit to the State in 1873. This tract by Mr. Kern is not only to show the new settler what has been done, but what may still be accomplished in regard to kinds not yet tried. Few persons are better fitted to give such advice than Mr. Kern. It will be sent gratuitously to all applicants by Mr. Kern, North Topeka, Kansas.

HOW WE SAVED THE OLD FARM.—Loring publisher, Boston, Mass.—A very pretty story for boys; indeed even when advanced beyond boyhood years, the reader will by no means be sorry for reading it. Almost every thing supposed to have been done in an emergency, could have been actually done, and the influence of such reading on young characters is very good.

THE SEASON.—A Northern paper, in a kind notice of the *GARDENER'S MONTHLY*, remarks "that its hints are far too early for that Northern clime,"—which is a good fault. To be too early with our hints enables anybody to profit by them when the warm weather comes. They are "too early" here this year. The frost is still in the way of tree digging this end of March.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

THE AMERICAN POMOLOGICAL SOCIETY.—We have before us a note from Mr. Berckmans, and other Southern friends of the American Pomological Society, expressing their opinions that in view of the fact that two successive meetings of the society have been held in the Southern States, and for other reasons, they would be perfectly willing to see some Northern location substituted for the one named at the last meeting. If there is to be a change why not have it in Boston? It would be a graceful compliment to President Wilder, who has done so much to make the society the very useful body it is conceded to be.

MASSACHUSETTS HORTICULTURAL SOCIETY.—**MR. JAMES CRUICKSHANKS.**—We are pleased to note that this society which Mr. Cruickshanks did so much to honor, gratefully passed the following resolutions so well due to his memory:

Boston, February 3rd 1879.

To the family of the late James Cruickshanks.

At the meeting of the society held Saturday, February 1st 1879, the following preamble and resolutions were unanimously passed.

Whereas, It has pleased the All-wise disposer of events to remove from us by death our fellow member James Cruickshanks, therefore,

Resolved, That we thereby sustain a loss which will be long and deeply felt. His great love of horticultural pursuits, his long experience and his sterling integrity gave weight and value to his counsel. Constant and faithful in all his duties, genial, social and sympathetic in his nature, his presence was always a source of pleasure to us, and we shall cherish his memory in full sympathy with his family in their bereavement.

Resolved, That these resolutions be entered on our records, and that the secretary be directed to send a copy to the family of the deceased.

Mr. Manning the secretary of the Massachusetts Horticultural Society, in transmitting the resolutions to the family of the deceased thus gives expressions to his feelings of regard:

"I must avail myself of the opportunity to say a word, though to those of his family who know me it may be unnecessary, expressive of my personal regard for Mr. Cruickshanks.

"There was no member of the society whom I greeted with more pleasure, none more trusted by every one in the society, and we shall long remember and miss his stalwart presence and his hearty grasp of the hand."

At our request Mr. George Cruickshanks kindly furnishes the following brief notes of his father's work.

"My father was born in the town of Dunce, Berwickshire, Scotland, September 1st, 1800, followed the profession of his father, that of a gardener; he learned with his father while gardener at Lethington castle, Scotland, where his father died about 1830, after twenty-four years service. He filled places in the east of Scotland as head gardener, and that of superintendent of Light Hill cemetery, Glasgow. In the Spring of 1842 he arrived in New York, engaged to go to Hartford, Conn. with his wife and six children. I saw him in the Fall of the same year. Moved to the vicinity of Boston in the Spring of 1845. After filling the situation of gardener, he accepted the position of superintendent of Woodlawn cemetery in 1850, Chelsea and Malden, near Boston, which position he filled for nearly thirteen years; when he resigned in 1863 to begin the practice of landscape gardener and horticultural engineer, at which he had all he could attend to while he was able. He left an aged widow, two sons and two daughters, and a numerous circle of friends to mourn his loss.

"Of the family there were three sons and three daughters, of which I am the oldest of the four left, a brother in Kenosha, Wis., a minister, one sister married to an artist in Chelsea, and one sister living at home and unmarried."

We have given more than our usual space to these notices, because few worked so hard and really did so much as Mr. Cruickshanks to make the working practical gardener respected by those who employed him.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

Many people are very impatient to begin planting. If the sun shines warmly for a few hours they think it is almost too late to plant trees—even though the ground is half frozen. Practical gardeners and experienced nurserymen, wearied with importunities and often suspected of intentional delays, lose patience, and on the principle that it is better to have peace now though it bring trouble hereafter, send on or plant the trees. The earth being wet, pastes instead of powders, and but a meagre portion of the roots come in contact with the soil. All roots or parts of roots that do not touch the earth might as well not be there. Far better to have a poorly dug tree well replanted than a tree with all its roots, that is reset in pasty ground. Indeed it is a disadvantage to have a tree with numerous roots when it is planted in pasty ground, for it is still more difficult to get the paste through the numerous little roots. And so fibrous rooted plants are in more danger than those with a few coarse woody roots. Hemlock Spruce, Norway Spruce and Arborvitæ often die in large numbers when a few warm days in May or June come, if they have been planted when the ground was pasty. If the leaves commence to fall it is a sign that the roots are not in contact with the earth, and should receive

attention at once. When the ground is dry the surface should be beaten with heavy paving rammers. Peradventure some of the earth may be then pressed in about the fibrous roots.

In transplanting flowers that have roots large enough to admit of the practice, it is best to dip the roots, immediately before planting, into water. This will obviate the necessity of after-watering, and its consequent injurious effect. If the plants appear to flag, shade or put an inverted flower-pot over the plants for a few days; if this does not bring the plant to, it must have water.

Flower-gardening, as we have often said before, affords scope for many pretty fancies, besides arrangement of color, which in the hands of a person of taste, render a garden a paradise of enchantment. Borders and edgings of ivy, periwinkle or variegated plants, may be made to appear as frames to the pictures of pretty flowers enclosed by them. Waves and fringes of green may be led along through a large flower-bed, and the various divisions formed be filled with its own color, making a natural and living bouquet; different colored gravels may be chosen for paths between beds; different shades of green may be made by the selection of grasses of different hues, where grass walks are employed. Old stumps or roots may be occasionally introduced in the centre of beds and covered with green vines, or flowering climbers, as taste may

dictate; rustic baskets and vases, and even in many instances where artificial styles prevail, the topiary art may be called in and good effects result from the use of the knife and shears on certain plants.

Trellises and stakes for climbing plants and vines should be put in at or before setting out the plants. These plants always seem to grow with more freedom and vigor when they can find something at once to cling to. Climbing vines add greatly to the interest of a garden. They can be trained into all sorts of forms and shapes; and many of them, for gracefulness of form, or beauty of their flowers, cannot be excelled by any other tribe of plants.

In the first mowing of lawns remember what we have often said about close mowing. If cut too close the grass plant is weakened, and little creeping weeds have a good chance to grow. Under no circumstances should less than a half inch be left on the plant. If the grass has been injured by too close mowing for a few years past it may be renovated by leaving the grass high in proportion to its weakness. In very bad cases it may have an inch or even an inch and a half of herbage left uncut.

COMMUNICATIONS.

A LIVING TREE ALPHABET.

BY JONATHAN REES, PHOENIXVILLE, PA.

I have been trying to arrange a tree alphabet so that a tree will stand for or represent a letter or figure, and can be planted so as to spell a name or commemorate an event. I find the initials of our most valuable trees comprise nearly all the letters of the alphabet, and can be placed so as to be read as easily as the alphabet by those who make themselves acquainted with the letters the trees are intended to represent. Farmers could have their names planted in groves along the roads bordering on their property, with the date of planting, and it would be both interesting and instructive to be able to tell by these who occupies the premises by reading the planter's name in his trees.

If an arrangement of this kind were approved by the committee of horticulture and the trees placed in alphabetical order on your grounds (including the numbers), it would likely stimulate many with a desire to plant trees as a memorial. If an arrangement of this kind should be ap-

proved and you should consider it of sufficient value to adopt, I would ask your assistance in improving the arrangement so that it may not be necessary to make any subsequent alterations. I have endeavored to make up the list of the most useful and ornamental trees suitable to this part of the country, as follows:

A, Ash.	N, Norway Spruce.
B, Beech.	O, Pin Oak.
C, Cherry.	P, Poplar.
D, Dogwood.	Q, Quercitron Bl'k Oak
E, Elm.	R, Red Oak.
F, Fir.	S, Sassafras.
G, Gum.	T, Tulip Tree.
H, Hemlock.	U, Horse Chestnut.
I, Buttonwood.	V, Am. Arborvitae.
J, Juniper.	W, Willow.
K, Kentucky Coffee Tree	X, Apple.
L, Linden.	Y, Yellow Beech.
M, Maple.	Z, Pear.

NUMBERS OR DATES.

1, White Pine.	6, Locust.
2, Chestnut Oak.	7, Hickory.
3, White Walnut.	8, Chestnut.
4, Black Walnut.	9, Mulberry.
5, White Oak,	0, Cedar.

If we wish to plant to spell Charles Baker, 1878, it could be arranged thus, (I prefer placing the date first, as the two first figures are changed but once in a century, and therefore would be easier known):

1 White Pine.
8 Chestnut.
7 Hickory.
8 Chestnut.
C Cherry.
H Hemlock.
A Ash.
R Red Oak.
L Linden.
E Elm.
S Sassafras.
B Beech.
A Ash.
K Kentucky Coffee Tree.
E Elm.
R Red Oak.

A person passing along a road seeing a White Pine and Chestnut would know it was intended for a date, and would feel anxious to find out the others, and would thereby become more interested in the names of trees.

RENEWING LOST LEADERS.

BY W. H. COLEMAN, GENEVA, N. Y.

Your suggestion in the February number about protecting a tender evergreen leader by fastening to it a slender stick, reminds me of the method by which I renewed the leader of a Corsican Pine several years ago. As this tree is very open in growth, the breaking of a shoot leaves quite a gap. I tied a pretty stout stick to the main stem, letting it project about a foot above the point where the leader was broken off. Then I bent up the nearest small limb as far as I dared and tied it to a stick. In a few days I tightened the string and so gradually brought the limb up close to the stick where it remained the rest of the year. Next Spring the stick was removed, the limb remained upright with only a slight crook in its lower part.

PENTSTEMONS.

BY W. C. L. DREW, ELDORADO, CAL.

This genus of plants is so well known that any remarks would be useless; there are, however some of the handsomest members that have been but very sparingly, if at all, introduced to cultivators. These are natives of California, where, in their wild state, they fill the valleys and cover the hill-sides with the gayest of blooms from May to October.

Within California and vicinity there are found some twenty odd varieties, all of which are fine blooming plants, but to describe which would take up a whole number of the MONTHLY, therefore I shall only speak of a few of the finest, and which I deem most worthy of cultivation.

Pentstemon spectabilis. One of the handsomest species, growing two to four feet high. This variety is found on dry hill sides, blooms continually from May to October,—the dryer and more sterile the place the finer bloom; I have seen it in bloom where the ground was as hard and dry as a brick. The flowers are borne in long panicles, often two feet long, loosely many flowered; corolla nearly an inch and a half long, the short tube suddenly expanding into a wide ventricose throat. In color, the throat and tube are a rich purple, while the lobes are a clean blue.

P. Richardsonii. Grows two to three feet high, makes a very branchy and well shaped plant. Flowers in loose, irregular panicles; corolla with an ample inflated throat, the upper and lower lips widely spreading. Color, a clear violet throughout.

P. centranthifolius. Our most showy species, grows two to three feet high, panicles one to two feet long. Flower with a narrow tubular corolla over an inch long. Color, a bright scarlet red. Very dry grounds.

P. Menziesii. A fine variety, making well branched plants a foot high. Flowers with a gradually expanding tubular corolla three-quarters of an inch long. Color, from light to deep pink. Flowers in short panicles. Grows in high dry situations, where it blossoms finely.

P. antirrhinoides. A handsome variety, growing from one to three feet high. Corolla with a very short tube and wide open mouth, the upper lip of which is arched and lower recurved. Flowers borne on single peduncles, terminating leafy panicles. Color, pure yellow, for which it is remarkable. There is a very near species of the above known as *P. breviflorus*, reported with a flesh colored corolla streaked with pink. Height, shape of corolla, etc., not known.

P. cordifolius. A peculiar variety, scrambling over bush with long sarmentose branches, from three to four feet long. Flowers in leafy panicles, corolla with a long narrow tube an inch and a half long, the upper lip erect, and quite half an inch long. Color bright scarlet.

P. glaber. This is the most common species reported from Oregon and eastward of the Rocky Mountains, grows one to three feet high. Flowers in narrow panicles a foot long; corolla from three-quarters to an inch long, tube narrow, opening into an oblong funnel-form throat. Color blue to violet purple.

P. Roezli. Grows from one-half to a foot high, flowers in compound panicles. Corolla half an inch long, funnel form, above the narrow tube. Color light violet blue.

YUCCA GLORIOSA IN TEXAS.

BY G. ONDERDONK, MISSION VALLEY, TEXAS.

I wish I could show you here a full-grown specimen of the *Yucca gloriosa*. It is quite common in this region, and is one of the first objects in the Texas vegetable world that attracts the attention of the new comer from the more Northern States. The wood resembles that of the palm tree; in fact we regard it as a species of Palm. The two very striking peculiarities of this *Yucca* are the leaves and its enormous bloom. The leaves are about two or two and a half inches broad at the base, and from a foot to three feet long, according to

variety. These leaves are composed of a strong fibrous substance, are thick enough and sufficiently rigid to stand out as straight as a line. They gradually diminish in width until they terminate in a heavy thorn as sharp as a needle. They are so closely set upon the body and summit of the tree that their bases crowd each other. As they thus radiate in every direction they constitute a stubborn barrier in protection of the tree. So formidable are these leaves that the tree bearing them has received here the common name of "dagger tree."

As the tree increases in height the undermost leaves drop, exposing the smooth bark below them. It attains the height of from twelve to fifteen feet. So, now you can imagine the appearance of this Yucca, as its head of great green swords, supported by the clean naked trunk, constitutes the entire tree. Sometimes the trunk branches out and supports several such heads as we have described, often so closely pressed together as to appear to constitute one gigantic crown of monstrous thorns. About the first of March a spike shoots upward from the center and here grow the flowers, an enormous plume sometimes three feet long and eighteen inches in diameter, and so compactly placed as to seem a solid mass. The ruling color is a rich, shining creamy white, which is varied by a light tinge according to the sub-variety.

The tree itself is beautiful, and when it is surmounted by its glittering plume in such a gay contrast with its long bright green leaves, the Yucca gloriosa is certainly a prince in the floral kingdom. I have seen this flower at a full distance of two miles when circumstances were all favorable to a distant view. I have seen strangers from the North point to one of these trees in bloom and say, "If I could have that tree placed in my yard just as it is, I would freely give fifty dollars."

GARDEN NOTES.

BY REV. HENRY WARD BEECHER.

The French habit of trimming and cutting back trees in parks and gardens is to be avoided. But there are many effects to be attained by the knife, which deserve consideration. The Catalpa is not a comely tree until it is quite old, then, as one may see in Princeton, N. J., it is as fine as an old Horse Chestnut. But by cutting it back every year to the ground it sends up a multitude of stems bearing immense leaves of a bright green, which give a very striking effect.

The American Balsam Fir, is when young, one of the most charming of evergreens, but with age it becomes bare-legged and scraggy, and can be made seemly only by being at the back of plantations. But, when the tree has reached twelve or fifteen feet in height, if its top be excised, the side branches will fill out and give a pleasing effect.

The Acer tartaricum or Tartarian Maple, does not produce a good effect in our climate if allowed to have its own way. But by reducing it to a bush, by annual severe pruning, the young shoots will be brilliant with leaves and color.

The Salix lucida is almost worthless as a tree; but if cut back every year and never allowed to grow more than twelve feet in height, it furnishes one of the most satisfactory shrubs that can be planted near the house. The leaves will be large, fresh and brilliant.

Let me commend the Ligustrum Japonicum, or Japan Privet, to all lovers of fine shrubs. Its leaf-beauty is eminently satisfying, and it should supplant the common Privet.

I am glad to see in your January number, an article upon the Retinisporas. They are the very evergreens required in small grounds, door-yards and in cemeteries. I have had every kind mentioned in European catalogues, and have found them perfectly hardy without protection, at Peekskill, which is forty miles north of New York City. R. squarrosa, is apt to be a little cut by the Winter, but by slight clipping in Spring it soon regains its soft and misty appearance. R. obtusa and R. pisifera, should be planted with room enough, as they become fine trees. They are rapid growers, and hardy. R. obtusa is a kind of substitute for Lawson's Cypress, which will not endure our Winters. The R. lycopodoides is all that your correspondent says; but in some respect the R. leptoclada is more curious, though perhaps not so beautiful. Its branches are like narrow fronds of fern. Its color is yellowish-brown green, and it is utterly unlike any other evergreen.

By the name R. filifera I have a species. It should be in every collection. Its branches are thread like, and fall over gracefully, with fountain-like effect. There is a dwarf kind, R. filiformis, which yields a beautiful mat, and might be employed as an edging.

I have long ago abandoned box as an edging. It will not endure our Winters without gaps. I have fallen in love with Arborvitæ Tom Thumb, as a plant for borders; it is hardy, dwarf, bears

clipping well, is beautiful in Winter, and if not in too rich a soil keeps its fine foliage without apostatizing to the original species.

I commend to all lovers of the Belgian or Ghent Azaleas, the A. mollis. It is a great accession to the month of May or even June. It blooms before the common Ghent Azalea, is twice its size of blossom, has considerable range of color, and every year adds new shades. With me it has proved hardy for the past three or four years and is a great favorite. I marvel that so few people know anything about the hardy Azaleas. They are the glory of June. Not so gorgeous as the Rhododendron, they are more hardy, easier to manage, and if they were only evergreen, would run a race with their great brothers with a fair chance of coming out equal.

But I must stop. When a man begins to talk about his trees and shrubs, only a mother talking about her children can equal his untiring loquacity.

EDITORIAL NOTES.

THE HARDY PITCHER PLANTS.—Mr. Geo. Such, of South Amboy, has formed a full collection of the singular, and we may add, world-renowned Sarracenias, and thus describes them:

"Nothing in our houses proves more attractive than these beautiful and interesting Pitcher-plants, and consequently we cannot too strongly recommend them to the attention of our customers. Half a dozen, of the same variety, put into a ten or twelve inch pan, constitute one of the most remarkable objects that can be exhibited at a Horticultural show. For florists, these are valuable plants, and one, if no more of each sort, should be in the hands of all who have a greenhouse.

"*Sarracenia Drummondii alba*. The pitchers of this are two feet high, slender at the base and widening towards the top,—being shaped much like a tin fish-horn. They are mostly a fine green color, but towards the top are pure white, netted with crimson. The flowers are crimson.

"*Sarracenia flava*. The pitchers in this are erect, and two to three feet long, narrow at the base, widening upwards, and forming a large open throat, with a broad lid. The color is a fine bright green. A light yellow flower is produced on a tall stem; but even without this, the plant attracts great attention.

"*Sarracenia psittacina*. The most compact in its growth, and one of the finest of the Sarracenias. The pitchers are beautifully tinted, and mottled with white and rose color, and are very oddly shaped, being crooked like a parrot's beak.

"*Sarracenia purpurea*. Our hardy Northern Pitcher-plant, which for quaintness of shape, and fine markings, is second to none of the family. We have made a selection of some fine plants of varied and distinct character.

"*Sarracenia rubra*. These pitchers are slender, varying from one to two feet in length. The color is bright green, profusely marked with crimson veins. The purplish red flowers have the odor of violets.

"*Sarracenia variolaris*. This throws up pitchers eighteen inches long, which are green, finely mottled with white. The flowers are yellow."

DOUBLE NATIVE ANEMONES.—Our early wood Anemone, *Anemone nemorosa*, is pretty enough as a single flower; but in its double condition, it is of heightened interest. We note by the catalogue of hardy plants of Woolson & Co., that there is under culture, a double white and a double rose—two double varieties. There is no reason why our native species of wind-flower, may not produce as many kinds as the foreign species have done.

ANDROSTEPHIUM VIOLACEUM.—When preparing the chapter to accompany the plate of this rare species for "The Flowers and Ferns of the United States," it was supposed this beautiful South-western bulb was not yet under culture. It may not be to any great extent; but we see it offered among others in the Spring bulb catalogue of Messrs. J. M. Thorburn & Co. It is pleasant to note that it is no longer necessary for those who desire to get American plants, to have to go to Europe for them.

LYGODIUM SCANDENS.—This pretty climbing fern is hardy under somewhat sheltered circumstances. This and the American climbing Fern *Lygodium palmatum*, are the most beautiful under culture. There are few things more interesting than a fern garden. And one who has a partially shady place, or a small piece of woods; even a group of half dozen trees, may have one.

A ROSE BY ANY OTHER NAME WILL SMELL AS SWEET.—But the *London Journal of Horticulture* says there are roses by other names which do not smell at all; and it thinks that in Rose judging sweet odor ought to be one strong

point considered. It thinks, at least its correspondent does, that it is absurd to give a rose any premium at all if it has no odor. A rose is not a rose unless it is sweet, by what name soever called.

VALUE OF THE AMERICAN LINDEN.—The European Linden is so poor a tree in most parts of the United States, as to be rarely in demand now. The American Linden on the other hand, is one of the most popular and most valuable ornamental trees we have. By the following from 'the Garden, it would seem that even in Europe, the American species has a good character. The paragraph seems to be from Mr. Robinson's own pen:

"We have so often condemned the common Lime tree for towns, that we make haste to do justice to the American Lime as a street tree. It retains its leaves quite fresh long after those of the European Lime have perished. There is a very fine variety of this lime, raised a good many years ago by M. Fröbel, of Zurich, of which there is one specimen tree planted in a street in Zurich, where it may be seen and compared with *Tilia alba*, from which it was raised, and the European Lime. Judging from what is seen there, it would seem to be a very valuable variety. It is called *spectabilis* by the raisers."

CULTIVATING NATIVE FLOWERS.—Miss Carrie Brown, in her report on botany to the Montgomery Co., Horticultural Society of Dayton Ohio, has this to say for plant culture at the soldiers' home of that city:

"Mr. Beck, the well-known landscape gardener at the home, has already made a beginning in the way of a collection of native ferns. Every one who visited the home last Summer, must have noticed the rock-work in the ravine encircling the large flower bed at the western end of the garden. Upon this rock-work Mr.

Beck has now many varieties of native ferns, and proposes to keep adding to them as he is able; and will be glad to plant there any contributions of ferns, that this society or any others may send him. It is also his expectation to make in the space inclosed by the rock-work just mentioned, a pond, in which to raise native aquatic plants, and has already several varieties of water-lilies to plant in it. And here he will place any contribution suitable for such a location."

THE IRIS.—There are few kinds of plants better adapted to Summer blooming in American gardens, than the various varieties of Iris. By a judicious selection, they will afford flowers from early Spring to Autumn. They do admirably in borders in front of shrubbery.

THE HOLLYHOCK FUNGUS.—The rust or "disease" which has nearly swept the Hollyhock out of existence in American gardens, is nearly as bad in Europe. Prof. De Barry believes the fungus originally came from South America.

NIEREMBERGIA RIVULARIS.—In the remarkably full catalogue of hardy herbaceous plants, issued by Thomas S. Ware, of Tottenham England, is a pretty figure of *Nierembergia rivularis*, which reminds us that during the past season, we saw it in our own country in several gardens, and that it is one of the best Summer blooming hardy plants that we know of, and would be particularly affective in rockeries.

THE WINTER ACONITE.—A visitor to the Bartram gardens early in March, tells us that wild-like under the trees the Winter Aconite, *Eranthus hyemalis*, with its brilliant buttercup-like flowers, was in full bloom. In a country like ours where the first "blush of Spring" is so welcomed in early flowers, it is remarkable that the Winter Aconite is not more often seen.

GREEN HOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

PROPAGATING RARE PLANTS.

BY THOMAS LAWRENCE, OGDENSBURG, N. Y.

There may not be anything new in the following method of propagation; still as I never saw

or heard of it before hitting on it, I thought there might be some of your readers like myself.

It is nearly always desirable to increase new plants, and plants of slow growth faster than they furnish wood for the purpose. It can be increased from two to ten fold by commencing at the point of a well established plant, and split-

ting it downward an inch or more according to its nature and growth, leaving it in that condition for a day or two. Then commence at the point of these two halves, and split them down also into quarters. Leave them from two to ten days to callous, when each quarter will make a cutting almost certain to grow, even if cut into single eyes. As soon as the cuttings have rooted, been potted and well established, split them also half their length, and in a few days more continue the split down to, and through the roots, making two or more plants instead of one. I find it advantageous with tricolored geraniums, double primulas, etc. It does not endanger the life of the parent plant, for they can be taken off a few at a time, thereby lessening the shock that would occur to some plants if the whole top were taken at one sweep. The parent plant goes right on growing without the necessity for repotting. The young growth of most hard wooded plants might be facilitated in the same way. There is no rotting in the cutting bench as is often the case with whole cuttings of tricolor geraniums, poinsettias, etc.

NOTES FROM 1878.

BY REV. E. P. P., CLINTON, N. Y.

Those who fail in the cultivation of ordinary window plants, should make use of their common garden shrubs for winter bloom. I have from Christmas till Spring, a fine show of Lilacs, *Daphne*, *Deutzia gracilis*, by simply prying out the offsets or suckers of the larger lawn bushes in October, leaving them in the cellar until wanted; then potting them, and placing in the conservatory or bay window. They come into rapid growth and abundant bloom. In the Spring they will serve to plant out if desired. All these shrubs if allowed to develop their flowers in the shade will produce white blossoms, although much less perfect than when granted plenty of air and sunshine; light is absolutely essential to develop their normal colors. This is not an absolute fiat in reference to color, as is sometimes stated, for the best will not only grow in the dark, but will display the most exquisite shadings imaginable. It is possible that some vegetables have a power of gathering light, as the eyes of some animals gather in the feeblest ray, where others are blind. As we say cats see in the dark, so there is a power, possibly or probably, in some vegetable tissues to

respond to the different rays that do not touch our optic nerves. The shrubs at all events require light in abundance.

For northern latitudes we cannot too strongly favor the Geranium. It is so easily propagated in quantity, so easily preserved through the winter, so hardy against light frosts, so persistent and profuse of bloom that it is certainly unrivalled as a bedder. It is however of little use to endeavor to keep them through hung up by the roots, or in a damp cellar. Let them be cut back to a few leaves, potted or crowded together in a box and then kept in a dry room with but little water. Much pleasure can be secured by raising seedlings of the newest varieties, such as Sir John Moore, Mercy Grogan, Napoleon, Attraction. I have a fine collection, quite equal to any that I have procured by purchase. It is astonishing what advance has been made in developing this family within the past ten years. Among the noblest I reckon Pabellon, John Moore, Santley, Princess of Wales, Startler, Dr. Torrey, Martins, Diego Podda. But the list of new and superb varieties is so long that any collection soon needs revision. I have only recently learned to secure superior and profuse bloom from the double sorts; they must not be cut back as we are accustomed to cut the single varieties.

Among rare trees for this section I am succeeding perfectly in growing the native Persimmon. My tree is now from the pip six years old. It stands the severest winters, when there has been no protection of snow, without losing an inch of wood. *Hydrangea paniculata* stands at the head of all summer-blooming shrubs, and needs no protection. I am going back among vines to the dear and home-like honeysuckles. They have such a healthy welcome, and are withal so careless of growth, provided only that they can have the humming birds and moths.

I want to put in a plea for more native trees in planting lawns and streets, especially the Linden. No one neglects the Maple and the Elm; but a Beech with elbow-room, or a grove which is still better is seldom seen. Yet there is not a more comfortable home-like tree in existence. It is unique, sheltering, rich in foliage, and exquisite in leaf. Not the least attraction is its hospitality in Autumn. It loves the squirrels and the boys. The Linden is for grand foliage, stately trunk, and honey-making purposes unequalled. I have a grove of lindens for my beehouse shelter.

Among all our recently acquired garden flowers, nothing surpasses the golden or Japanese Cockscomb. The astonishing confusion of brilliant colors, the vast variety of blendings cannot fail to gratify any one. The plant and plume are equally graceful, and the leaves often half crimson and half golden, are as fine as the flowers. Transplanted with care a choice specimen or two can be kept in the window till Christmas, and then dried for future use.

FINE CYCLAMENS.

BY B., BOSTON, MASS.

Having been a careful reader of the MONTHLY from its first issue up to the present time, and knowing that its columns are open to everything that pertains to the interest of Horticulture, I venture to send you a brief account of a visit which I have promised myself these past three years, to see a gentleman who has become somewhat famous as a successful grower of that beautiful bulbous plant, the Cyclamen. For several years Mr. C. B. Gardiner of Newburyport, Mass., has made exhibitions at the Massachusetts Horticultural Society, which has been the delight of everybody who have been fortunate enough to see them, and I think you will bear me witness that where any florist makes some one thing a specialty he is more apt to be successful than when he takes hold of everything, and has no special object before him; at least this is one case. According to agreement we embarked for Newburyport, March 17th,—St. Patrick's Day,—amid snow and rain. Upon our arrival we were met by our genial host, and after a drive of some four miles, found ourselves at the desired place, and upon being conducted to the house devoted to the culture of the Cyclamen we beheld a sight long to be remembered. There were about five hundred and sixty plants in bloom in five and six-inch pots; each pot having an average of from twenty-five to one hundred and fifty and two hundred flowers and buds, while hundreds of flowers had been picked for the market. The color of the flowers varied from a pure white to the most beautiful deep rich magenta, and were all well above the foliage, some of which was very finely mottled, forming a delightful contrast with the flowers. We measured one of the largest plants which had been set aside as a single specimen; it was grown in a ten-inch pot, size of bulb seven inches in diameter, and had at least three hundred

flowers and buds; the flowers of this were a pure white, and the foliage a deep glossy green, there were several other varieties equally as large.

The plants are grown in a span roof house, running north and south, in a temperature of not over 40° at night and running from 50° to 55° during the day with sun, at which time an abundance of ventilation is given. Mr. Gardiner thinks that once in two years is enough to re-pot, and when he does, uses the following compost; four parts of meadow muck, after it has been heaped up and exposed to the action of the frost for one year, four parts of old hot bed soil, two parts leaf mould, two of old rotten cow dung and one of sand, thoroughly mixed, being very careful to have good drainage so that the water will pass through quickly; this is of great importance. In potting the crown of bulb to be kept above the rim of the pot, no liquid is ever used. As the foliage begins to turn yellow water is gradually withheld, and they are placed in their Summer quarters under the bench of the same house, being watched carefully and watered only when any bulb shows signs of shriveling. When the bulbs begin to grow they are again placed on the bench and treated as already indicated. Mr. Gardiner attributes his success to keeping the house cool and not forcing the growth in the least. There was not a spindling plant among them; any one might have been transferred to a cool room without effecting them in the least. The Cyclamen is valuable not only for commercial purposes, but as a window plant has few if any superiors.

FLORAL NOTES FROM TEXAS.

BY MRS. S. E. BYERS.

I send some photographs by the same mail as this. Photograph No. 1, beginning at the top: 1, Erianthus Ravennæ; 2, Canna and Artemesia; 3, Celosia; and 4, white flowers of the Hibiscus Boo-Yong, that I wrote to you about in the December number of the GARDENER'S MONTHLY. White flower with narrow leaves, a flower of Cactus triangularis night-bloomer, but was in this faded condition at nine o'clock A. M. Spray of small pink flowers of the Antigonon vine to the right, two stems with narrow lanceolate leaves; on the right, a very beautiful shrubby evergreen Acacia with yellow flowers and blueish-green leaves, the color of those of the Carnation pink. The withered flower was Datura violacea, but though fresh from the garden withered on the way to have its picture taken. The

leaf on the left is the leaf of the Hibiscus with the white flower. Small white flowers you will recognize as Jasminum grandiflorum. Large dark leaf of the Red Ricinus.

Photograph No. 2. 1st. The Tuberose was the second flower from the same bulb, which had bloomed in July and again the first of November. The Tuberose is a fine specimen of the

center were some sprays of Atragene, but they are indistinct although they look handsome; these were stuck into a pot in which a small plant with imperfect clusters of Clereodendrum fragrans is growing, three variegated leaves of Ficus Parcelli, Marechal Neil bud lying upon the Celosia Uniola, etc. The fronds of fern and sprays of Biota you will easily recognize.



average tuberose as grown here—the common large variety. I have had a thousand in bloom at one time; none inferior, many of them better. They are of no market value here. A boy with a dozen spikes carried them around the streets and home again without being able to sell one for ten cents. Sedge grass in centre, Pampas grass to the right, and a small spray to the left. The large one on the left is Erianthus Ravennæ; in the

We had these taken to send to some of our friends, and as we enjoy each month perusing the GARDENER'S MONTHLY, we thought it might possibly be proper to send you one of each.

Gardening is yet but partially an art in this genial climate, and will not make much progress until we have a horticultural work suited to our climate. The lessons learned by experience are

valuable to others, but the florist or nurseryman who has to earn his daily bread cannot afford time to teach all mankind gratis what he has learned. Yet people pay more each year for foreign plants and seeds not suited to the climate and soil, and for those which would succeed if properly cultivated which are lost, than would pay for a periodical suited to the wants of the climate. Yes, we lost a worthy friend and co-laborer when Dr. Swasey died during the late epidemic. It does not always follow that a writer has the practical experience. Dr. Swasey had experience, which makes the loss the greater.

You say in the January MONTHLY that the *E. Ravennæ* is light brown with you. Is not that owing to the way it is cured? I cure mine by the French method: Cut before it has shot entirely out of its sheath. I hang it up head down, to dry. I think not more than two showed any color in fifty plumes. It has been admired here as more rare than the pampas.

I had some Persimmons, Texas variety, to send you last fall, but procrastinated until they spoiled. The Persimmon here grows very large, at least two and a half inches in diameter. They commence ripening the last of August or first of September. They require no frost, but on the contrary, ripen during our hottest weather; the thermometer is usually about 90° in the shade. The fruit dealers usually have them on their stands, and persons accustomed to them are very fond of them. The black or dark purple persimmon, which grows in places in Texas, is a beautiful small-leaved evergreen; the fruit ripens in July, but can scarcely be called edible; the tree will bear clipping, and is very ornamental.

Retinospora plumosa here, during the cold of winter, turns as brown as tan-bark, and on this account is objected to, although a very beautiful tree all the rest of the year. *Thuja*s and *Biota*s also turn brown for a few weeks in January.

[We are not sure that this letter was intended for publication, but the manner in which a "leggy" pot-plant was fixed up for an occasion, so interested us that we have had an engraving made of that photograph; and besides there are other good hints that we thought deserved more than a mere "pigeon hole." We hope to be pardoned for using the letter in this way.—ED. G. M.]

SOBRALIA MACRANTHA.

BY MANSFIELD MILTON, YOUNGSTOWN, OHIO.

A very beautiful and showy orchid from Guatemala. The flowers are of large size, about six inches across, of a beautiful purple and bright crimson color; only one flower is open at one time, but then as one decays another soon follows. The plant requires plenty of pot-room and good rough fibrous peat for the rather succulent roots to grow in. During the season of growth plenty of water should be supplied withholding as the growths ripen, but do not allow the plant to get so dry as to injure it by allowing the shoots to shrink. Look out for scale or any other insects on the leaves as this is one of those plants which is much easier to keep clean with an occasional sponge than destroy the insects when once they get a foothold.

THE AMERICAN BANNER ROSE.

BY PETER HENDERSON, NEW YORK.

In your last number you seem to express a doubt of how the new striped Tea Rose, American Banner may hold to its description. To give you ocular evidence, I to-day send you two buds, making the statement that we have now had it growing for nearly a year, and in the thousands of buds our stock has produced in that time, not one has been seen except such as has been clearly and distinctly marked—crimson and white like those now sent you,—some lighter than others, but that is the only variation. It is as we have said, a "sport" from *Bon Silene*, but is entirely distinct in its foliage from that or any other Rose we have ever seen, and this peculiarity of foliage in my opinion, is a guarantee that it will hold to its peculiar marking. The *Beauty of Glazenwood*, as you are probably aware was nothing but the old *Fortune's Yellow*, issued some twenty years ago, and when sent out from London last year, must either have been done through the grossest ignorance or rascality—in all probability the latter—for no condition that ever *Fortune's Yellow* could assume would ever have shown the striping of "crimson and gold" as the colored plate showed in the *Beauty of Glazenwood*. This experience in the *Beauty of Glazenwood* Rose was such as to well make the American nurseryman hesitate to take anything on faith from European growers, after such an impudent swindle. Mr. Saul of Washington, who sent it out here,

was in no way to blame in the matter except in being too confiding in believing the representations of the party from whom he bought it in England.

In 1860, a London nurseryman of the highest reputation, sent out with a great flourish of trumpets a new golden flowered *Verbena*, which he named *Most Welcome*; I quickly bit at the golden bait, and was the unfortunate medium of sending it far and wide in this country. When the thing flowered it proved to be an old acquaintance, that I had known when a boy—a distinct species known as *Verbena sulphurea*, flowers of a dirty white, a plant of no value except for botanical collections. I have not even yet heard the last of my yellow *Verbena* venture, but it was a valuable lesson and has taught me to have less veneration for the horticultural veracity of some of our English cousins.

[*Beauty of Glazenwood* as we understand that question, was a sport from *Fortune's Yellow*, but which was of such a transitory character, that it returned speedily to its original. We have never believed that there was any lack of veracity in those who first sent out that rose.—ED. G. M.]

HABROTHAMNUS ELEGANS.

BY J. L. RUSSELL, DENVER CONSERVATORIES, DENVER, COLORADO.

This beautiful plant is a native of Mexico, and belonging to the natural order *Solanaceæ*, deserves more attention than it gets, for instead of attention from many it gets what the gardener terms "pitched out." So a word on its culture, and the description of a plant growing in our conservatories may not be out of place in the MONTHLY. The plant I refer to was grown from a cutting about eighteen months ago, and planted out in the bed where it is now growing scarce one year ago, and at this writing, November 28, it has towered up to the height of sixteen feet by twelve feet through, and by actual count it was found to contain over six hundred trusses with buds and blooms, about one-sixth fully expanded and drooping with all the gracefulness of life, which forms a sight worth seeing. And aside from the beauty of the bloom on the plant, in a cut state they last a considerable time, and work in to good advantage in cut flowers. It has, I admit, a fragrance that is not much admired, but by introducing fragrant flowers around, it is seldom or ever noticed. As regards culture, the most essential point is pot-

room, and without that it will not do much. It does not require the temperature of the hot-house. The house in which our plant is growing has often registered forty-five, and below that on some occasions. The soil used was principally composed of screenings of soil for finer purposes, which evidently contained much manure. It is easily propagated by cuttings taken from wood not too old or not too young, which, by a little observation, can be easily regulated by the pressure the knife requires. Inserted in brisk heat they soon root; when rooted, pot off and place in a sunny place when started in the pots. Keep them pushing lively by giving plenty of pot room. When all danger of frost is over plunge the pots outside in full sun; about the middle of September place them in the greenhouse in a sunny situation, give manure-water freely, and when they show inclination to break give larger pots. If good specimens give two sizes larger. They will soon fill up and bloom finely. Admitting as I do that good plants and bloom can be obtained from pot culture, still I would advise any one that has the space to bed it out against the south wall, or any sunny place where scarce anything else would grow, to try the *Habrothamnus*. I think you could plant nothing that would afford so much pleasure as well as benefit in so short a space of time. As I have just said, good flowers can be obtained from pot-culture, but the blooms fall far short of having that brilliant hue which the plant in the bed would yield. As to insects, I have the first one of any kind to see on the plant yet.

FLORAL PROGRESS.

BY WALTER ELDER, PHILADELPHIA.

The new type of fringed-leaved *Coleus* seems to be in a fair way to become varied and popular. During a visit to Mr. H. A. Dreer's country nursery last Fall, I noticed no less than eight different kinds of them. Singly they show little differences, but together in beds the distinction is very apparent, and the whole result remarkable.

The advance in *Zonale Geraniums* is particularly remarkable, to say nothing of Mr. Harris' beautiful seedling *Archbishop Wood*; some of the French kinds are remarkably distinct. The *New Life* of Mr. Cannell is a decided addition to the list of good kinds. The flowers as I have seen them are as large as a quarter dollar, and they are striped and flaked like some of the

old-time carnations, though now unfortunately such carnations are seldom seen.

When I look back on the introduction of the *Verbena melindres* and *V. Tweediana* by Mr. Buist, it seems but as yesterday; but the numerous beautiful varieties everywhere about us tell the story of how rapidly the time must have passed away; still with so many evidences of floral progress, it is satisfactory to reflect that the passing time is gaining as it goes.

CHRISTMAS ORCHIDS.

BY MR. WM. FALCONER, CAMBRIDGE BOTANICAL GARDEN, MASS.

The increasing taste for Orchids and the higher demand for winter-blooming sorts have induced me to send you a list of those that are now in bloom in some of the gardens near Boston. The list of Mr. Ames' Orchids was kindly compiled (on December 26) for me by Mr. Robinson, Mr. Ames' gardener. I regret that I have not a list of Mr. Paison's (of Watertown) orchids, as he has some extremely fine kinds, and well-grown and handsomely-flowered specimens; indeed his "cool" orchids are among the most robust and healthiest in the country.

Orchids in bloom at F. L. Ames', North Easton:

<i>Angræcum eburneum</i> .	<i>Dendrobium chrysanthum</i> .
" " var. <i>virens</i> .	" " <i>japonicum</i> .
" " <i>sesquipedale</i> .	" " <i>Wardianum</i> .
<i>Ansellia Africana</i> .	<i>Epidendrum ciliare</i> .
<i>Broughtonia sanguinea</i> .	<i>Eria stellata</i> .
<i>Calanthe Veitchii</i> .	<i>Laelia præstans</i> , var. <i>superba</i> .
" " <i>vestita</i> , var. <i>lutea</i> .	<i>Lycaste aromatica</i> .
" " " <i>oculata</i> .	" " <i>Skinneri</i> .
" " " var. <i>rubra</i> .	<i>Maxillaria picta</i> .
" " " <i>oculata</i> .	<i>Odontoglossum grande</i> .
<i>Cattleya Chocoensis</i> .	" " <i>Rossii</i> , var. <i>majus</i> .
" " <i>Pinelli</i> .	" " <i>Uro-Skinneri</i> .
" " <i>Trianiæ</i> .	<i>Oncidium</i> .
" " " var. "Daisy."	" " <i>cheiroporum</i> .
<i>Cirrhopetalum Medusæ</i> .	" " <i>juncum</i> .
<i>Cypripedium Argus</i> .	" " <i>ornithorhynchum</i> .
" " <i>barbatum</i> , var.	" " <i>pelicanum</i> .
" " <i>biflorum</i> .	<i>Phalenopsis amabilis</i> .
" " <i>insigne</i> .	" " <i>grandiflora aurea</i> .
" " " var. <i>Mau-</i>	" " <i>rosea</i> .
" " " <i>lei</i> .	<i>Pilumna fragrans</i> .
" " <i>longifolium</i> .	<i>Saccolabium giganteum</i> .
" " <i>pardinum</i> .	" " <i>violaceum</i> .
" " <i>Roezlei</i> .	<i>Sophranites grandiflora</i> .
" " <i>Schlimii</i> .	<i>Stenia fimbriata</i> .
" " <i>Sedeni</i> .	<i>Vanda tricolor</i> .
" " <i>venustum</i> .	

Besides many of the above, the following are in blossom in the garden of E. L. Beard, Esq., Cambridge:

<i>Dendrobium bigibbum</i> , var. <i>superbum</i> .	<i>Lycaste Skinneri</i> , var. <i>alba</i> (lovely).
<i>Epidendrum prismatocarpum</i> .	<i>Odontoglossum cordatum</i> .
<i>Laelia albida</i> .	" " <i>Ehrenbergii</i> .
" " <i>autumnalis</i> , var.	<i>Oncidium crispum</i> .
	" " <i>obryzatum</i> .
	" " <i>varicosum</i> .
At the Botanic Garden, Cambridge, December 31st, besides several of the preceding, are—	
<i>Coelogyne cristata</i> .	<i>Maxillaria punctulata</i> .
" " <i>sp.</i>	" " <i>variabilis</i> .
<i>Cypripedium Harrisianum</i> .	<i>Ocotea Surinamensis</i> .
<i>Dendrobium heterocarpum</i> .	<i>Odontoglossum Rossii</i> .
" " <i>tetragonum</i> .	" " <i>Insleayi</i> .
<i>Epidendrum cochleatum</i> .	<i>Oncidium Papilio</i> .
" " <i>Ibaguense</i> .	" " " var. <i>majus</i> .
<i>Laelia superbiens</i> .	<i>Pilumna laxa</i> .
<i>Liparis pendula</i> .	<i>Zygopetalum Mackayi</i> .

No doubt the above lists could be largely augmented by considering the collections of Albany, New York, South Amboy, Newport and Baltimore.

THE VICTORIA REGIA AND TROPICAL NYMPHÆAS IN THE OPEN AIR.

BY EDWARD D. STURTEVANT, BORDENTOWN, NEW JERSEY.

Somewhat late in the spring of 1877 I obtained a young plant of the *Victoria Regia*. Having never seen this wonderful plant I determined to try the experiment of growing it in the open air. I built in a warm sunny position, on the south side of a vinery, a tank of bricks and hydraulic cement twenty by thirty feet, and fifteen inches deep. In the centre of this was a pit four feet deep and five feet square. At the top of this pit a curb was built high enough to separate the water within from the water in the main tank. In this central pit was placed a wooden frame four feet square and three feet deep, filled with soil consisting of rich loam and the best manure in equal parts with a little sand. Across the corners of the main tank partitions about ten inches high were made, and the enclosed space filled with soil. In two of these corners I planted *Nelumbium luteum*, the American lotus, in another *Nymphaea cœrulea*, in the other *N. alba*. A few feet from the tank is the furnace pit of the greenhouse. In this I placed a common upright stove between three and four feet high. Inside of this was placed nine feet of inch iron pipe in a coil. From each end of this coil, a pipe of the same diameter was carried to the pit in the centre of the lily-tank and left open at the ends. By this means I was able to heat the water in this enclosed space to a temperature of 90° or more. At the same time a stream of

fresh water from a hose, sufficient to keep it pure, was let in. On the 8th of July, 1877, the young *Victoria* plant had leaves only five inches in diameter. It was then planted and a fire kept up constantly. It grew finely, and in a few weeks we were obliged to remove the upper bricks of the curb and allow the leaves to float upon the surface of the main tank. After this was done of course the heating apparatus had to act upon the water in the whole tank. It was not sufficiently powerful to raise the temperature very much. But the plant produced several leaves over three feet in diameter, and by the middle of September had one which measured four feet. This experiment was sufficiently successful to convince me that by starting early in the season with a larger plant, and having a little more artificial heat, the *Victoria* may be made to produce flowers and full-sized leaves in the open air in this latitude.

In the Fall the plant was taken under glass, but died. The *Nymphæas* bloomed finely, as also did *Limncharis Humboldtii* with its yellow poppy-like flowers. *Papyrus antiquorum* also flourished in the water, and the *Nelumbium* made growth sufficiently strong to bloom the next season.

Knowing that there were several magnificent water lilies cultivated under glass in Europe, last spring I resolved to try some of them in my open-air lily-tank. I procured tubers of *Nymphaea dentata* and *N. Devoniana*, which were potted, placed in a greenhouse in water kept at 85°, where they soon started into growth. In the latter part of June two plants of *dentata* and one of *Devoniana* were placed in the bed where the *Victoria* grew the season before. Artificial heat was kept up for a short time, until they were well established, and then discontinued. They began to bloom the last of July, and produced a constant succession until the middle of October. Unlike our common *Odonata*, these gorgeous lilies open at night, beginning about eight o'clock and remaining expanded until eight or ten the next morning, each flower opening three nights in succession. They stand on strong foot-stalks ten or twelve inches above the surface of the water.

N. dentata has white flowers, the petals expanding horizontally making a flat flower with the stamens gathered nearly into a cone in the center. It has an agreeable odor, but not as sweet as our native lily. I had several of this which measured twelve inches in diameter. It

is a native of Sierra Leone, and India. *N. Devoniana* is a hybrid from *dentata* and *rubra* another Indian species. The flowers are cup-shaped, and from eight to ten inches in diameter across the cup. No one who saw this will accuse me of axe-grinding when I say that it is one of the most lovely flowers in cultivation. At a meeting of the Pennsylvania Horticultural Society just previous to the last exhibition, one gentleman pronounced it more beautiful than the flower of the *Victoria*. The color is a very brilliant rosy red with scarlet stamens. I have never seen it grown under glass, but I believe the color must be more brilliant in the full sunshine and open air. When viewed by lamplight the effect is charming. Unfortunately it has no perfume. These three plants grew to cover a space fifteen feet in diameter. Many of the leaves measured eighteen inches in diameter. *N. dentata* has bright green leaves; those of the other have a brownish tinge. As a back-ground to the tank there was a border of tall-growing Cannas, Bamboos and *Colocasia*. In the back corners the tall yellow Lotus bloomed and bore its curious fruit. In the front corners *N. cœrulea* with its fragrant flowers, and *N. alba* bloomed until frost. This latter is a native of England, has broad waxy petals, is often six inches in diameter and is quite distinct from *N. odorata*. It is quite hardy in this country. I also flowered a variety of *odorata*; flowers precisely like Lady Hume's Blush Camellia in color. I call it var. *delicata*. I also grew *N. flava* but the plant was too young to flower. Upon two occasions the whole garden was illuminated at night, and the lily-pond was the centre of attraction to six hundred people. I have said that fire-heat was discontinued after a short time and that the tender species bloomed until into October. I believe that they can be grown in the open air more easily than is generally supposed—in fact without artificial heat—first starting them under glass. The best arrangement is a shallow tank, as the sun will warm the water more readily than in a pond. Such a tank of course requires some care to protect it from injury by frost in winter. But I have several times grown *N. cœrulea* in a shallow pond with good success; and judging from my experience with the others I see no reason why they cannot be grown in the same way. Care should be taken not to put them out until the water gets warm, and they should have very rich soil to grow in, about one-half well decayed manure.

Probably the best plan would be to put this soil in a box three or four feet square and one foot deep and sink it where the water is twenty or thirty inches deep. They can be wintered in a tub of water in the greenhouse. They produce during the summer young tubers which remain dormant during the winter.

EDITORIAL NOTES.

INSECT POWDER.—Wm. Saunders of London, Ontario, well known for his horticultural experience, as well as distinguished as the editor of the *Canadian Entomologist*, finds the Dalmatian Insect Powder, made from *Pyrethrum cinerariaefolium*, an excellent insecticide. He says:

"House flies are very sensitive to the effects of these powders. A few puffs of the dust from an insect gun, blown into the air of a room with the doors closed, the discharges directed towards those parts where flies are congregated, will stupefy and kill them within a very short time. The powder is somewhat pungent, and to breathe an atmosphere charged with it will frequently cause a slight sneezing, but beyond this the operator need not anticipate any annoyance. Frequently during the past Summer, when flies have been troublesome, we have pretty thoroughly charged the air in our dining-room and kitchen at night, closing the doors, and in the morning found all, or nearly all the flies lying dead on the floors. A few minutes after its use they begin to drop on their backs, and after a very short time die; if a room be closed for half an hour after using the powder, few, if any will escape."

He finds it as good against Aphides and other plant lice. Much superior in its results to tobacco smoke.

FORCING LILY OF THE VALLEY.—Miss Carrie Brown of Dayton, Ohio, was very successful in blooming Lily of the Valley last Winter, and in response to a request from the Montgomery Co. Horticultural Society, gave the following note as to their treatment:

"It is necessary to leave them in the ground until after a hard freeze. It may perhaps do to transplant the bulbs in the Fall to pots or boxes, and let them remain outdoors to freeze. In selecting the bulbs take those that have rounding tops instead of the pointed ones. Put them in a very warm place, and the light is not neces-

sary for them until they are well started, at least an inch high. Then give them light, but do not put them too near the glass, as they often blight if the sun is too hot upon them."

THE STORE-PLANT HOUSE IN TOWER GROVE PARK, ST. LOUIS.—While making a hasty run last Summer through St. Louis on the way to the Rio Grande, the editor was kindly driven around Tower Grove Park by the controller Mr. Henry Shaw, and among other interesting things, inspected the store-house for plants then being erected. This was simply a handsome brick building with numerous windows instead of an ordinary greenhouse. Mr. Shaw had noted from his extended horticultural experience, that a vast number of hardy plants which are used for Summer decoration, did not grow in the Winter, and therefore needed little light. It was of more importance to keep them from frost than to have an abundance of light. Of course a building with solid walls would be much warmer at far less expense than an ordinary greenhouse; and so this beautiful building was put up. Desiring to know the success during the past Winter Mr. Shaw now tells us:

"The plant-house erected in Tower Grove Park 100 by 30 feet, appears to answer our purpose, viz: for the Winter protection of palms and other foliage plants, to place in the park in Summer. The temperature has been kept at 50 to 60° to avoid a forced growth which would be affected by out-door exposure."

NEW OR RARE PLANTS.

NEW TEA ROSE MADAME WELCH.—The Bellevue Nursery Co. writes: "We send by mail this day one bud of the New Tea Rose Madame Welch, grown by us at our nursery. The plant is in a four-inch pot, and we think that with good treatment and with plants thoroughly established, the bud will be increased in size fully one half. The plant is of a good branching habit, vigorous, carrying its buds on strong stems which is so desirable for cut flowers; and from what we have seen so far, it will take its place along side of Safrano, Bon Silene and others as a bloomer, and we have no doubt that it will be eagerly sought after by the dealers in cut roses."

[This is a bronzy buff of sweet odor, and with slender oval form prized by the arrangers of cut flowers.—ED. G. M.]

CROTON "QUEEN VICTORIA."—This is said to be the first hybrid Croton that has been raised in England. It is the result of a cross between *C. Weismannii* and *C. interruptum*. It far exceeds in

well matured are from nine to twelve inches long, and about two inches broad, oblong lanceolate; the ground color of the leaf is rich golden yellow, beautifully mottled with green; the mid-



CROTON, "QUEEN VICTORIA."

beauty any of the imported species offered up to the present time. It is of medium growth and free branching habit, a most desirable feature in the formation of good specimens; the leaves when

rib and the primary veins are of a rich magenta color, changing with age to a vivid crimson; the margin of the leaf is unevenly banded with carmine, often extending as far as the mid-rib, and

so harmonizing with the rich yellow as to produce a gorgeous effect.—*B. S. Williams, London, England.*

DOUBLE ZONALE GERANIUM, ROBERT BUIST. Allegatiere the world renowned French raiser of Double Zonale Geraniums, has dedicated one of his best seedlings to Mr. Robert Buist, of Philadelphia. "Robert Buist" claims to be the best double scarlet out to the present time; stands the sun and open air culture, as well as forming a fine conservatory plant for Winter blooming. We may take occasion to remark that though on account of his advanced age, this distinguished florist withdrew from the heavier lines of the nursery business during the centennial year, he still does quite a large trade in the lighter ones; especially in new or rare greenhouse plants.

AGAVE PARRYI.—This comparatively new Agave, named in honor of Dr. C. C. Parry, is now flowering for the first time under culture in Mr. Shaw's Botanic Garden at St. Louis. This valuable plant was obtained at considerable expense a year ago from Lake Mimbri in New Mexico. A twenty-year-old plant of *Buonapartea juncea* flowered the past Winter in the same collection.

SCRAPS AND QUERIES.

DESTROYING WOOD LICE.—L. Bros., Buffalo, N. Y., find trouble in their cut flower cellar from wood lice, and ask a remedy. These pests are fond of boiled potatoes; put pieces in new flower pots, with nice new hay over the potatoes. They will find favorite food and shelter there, and can be caught by the score.

SEEDLING CYCLAMENS.—It is not generally known that Cyclamens will flower the first year from seed. With some remarkably beautiful flowers came the following note from Mr. D. Barker, of Norfolk, Va.:

"By this day's mail I forwarded to your address a box of Cyclamen bloom, *Cyclamen Persicum*. They are from plants the seed of which was sown June, 1877, and Feb., 1878. On one plant, the rosy white, there is by actual count upwards of seventy perfect flowers, and while the individual flowers are not as large as *gigantum*, the plants are much more profuse in flowering. The *Mimulus*' are from an improved strain

of my brother's, in Europe. The size and color speak for themselves." [These *Mimulus*' were truly beautiful.—*Ed. G. M.*]

THE FUCHSIA ILLUSTRATION.—H. L., Oak Park, Ill., writes: "Is it not an original way of raising specimen plants, viz., copying illustrations? The specimen *Fuchsia* purporting to be raised by Mr. Wm. Grieves is a copy of Cannell's Miss Lucy Finnis; the illustration has been in my possession for three years, also the plant. It is a beautiful variety, but does not always grow just like the illustration, at least not with me. I refer to the specimen *Fuchsia* in March number of *GARDENER'S MONTHLY*."

[It was our wish to illustrate our point about the proper way to grow *Fuchsias*, and the "illustration of a specimen" which we used we asked from the Greenbrook Nurseries, to whom it was only right that we should give the credit, and not to Mr. Cannell. There is no injustice in this, for we have no doubt the G. & P. Nurseries bought the cut of Mr. Cannell, and did not copy it. Our correspondent is not perhaps aware that this is a very common practice in literary work. In a very popular English book, widely read in this country, are cuts in use in De Breul's works, but we happen to know that they are not copies, but originally bought of the first owner.—*Ed. G. M.*]

CARNATION, PETER HENDERSON.—Mr. W. A. Bock, North Cambridge, Mass., writes: "Noticing in your March number an article from Messrs. Nanz & Neuner, of Louisville, Ky., in which they state that they believe some Eastern florists sent out last spring the Peerless or *Edwardsii* Carnation instead of Peter Henderson, I would state that I know it to be a fact that certain florists in New York swindled some of my neighbors in this manner. I received my stock from Messrs. Nanz & Neuner, and although they were in pretty feeble condition (being old plants), I have been able to raise a large stock of them. I think it a very valuable acquisition to the white flowering Carnations."

NAMES OF PLANTS.—A. N. P., Cromwell, Conn. The "air plant" you send belongs to the spiderwort family, and is *Chlorophytum Sternbergianum*. The other is *Bougainvillea spectabilis*, an old plant, flowering but occasionally, and which was used a few years ago in "seances" as "flowers from the spirit land."

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

JUNE BUDDED PEACH TREES.

BY H. J. HILLENMEYER, LEXINGTON, KY.

The saving of one year in the propagation of Peach trees having attracted the attention of nurserymen, I was induced to give June budding a trial. My first experiment upon two thousand proved very disastrous. The seeds were planted on extra hemp ground—a Kentucky term for the best of land—and were worked the first week in June, the stocks then averaging about the thickness of a lead pencil. After the buds had united well, they were headed in the usual manner. Visions of nice, smooth, light stock that would compare favorably with Eastern trees, floated pleasantly through my mind at this time. The stocks when headed were making an exuberant growth, and their total defoliation killed the entire lot outright.

My second experiment, last season, varied in detail from the first, in the manner of heading. The tops instead of being entirely removed were broken about an inch above the bud until sufficient foliage had been formed below the fracture to obviate the preceding loss. The buds broke very uniformly, and when six inches high the tops were entirely removed and as soon as deemed prudent sprouted. The growth was not very satisfactory, and the foliage presented decidedly a "dyspeptic" appearance. At digging time I was impressed with the idea that my June budded stock would be very much more ornamental on the "brush pile" than in the pack trenches, and grubbing-hoe in hand proceeded to its execution. The best trees attained a height of four feet, and in all but smoothness would have answered as a support to the languid steps of "that fashionable young man about town."

Peach trees here, raised in the ordinary way generally attain a diameter of three-fourths of an inch or over, a foot above the bud and are six to eight feet high. The average planter "in the Blue Grass" would not be favorably inclined towards "June" stock, and individually I am entirely satisfied as to the expediency of the new method.

BUDDING AND AFTER TREATMENT OF THE PEACH.

BY CHAS. BLACK, HIGHTSTOWN, N. J.

In answer to J. A. McK., page 82 March number, he is at least twenty years behind on the budding business if 2000 is a hard days work; it is not at all difficult to find men here who can bud 3000, 4000 and some few 5000 in ten hours when everything is in proper condition. We think we have brought the raising of Peach trees as near perfection as possible; still in twenty years hence we may be completely outdone. I will endeavor to give the information asked. Our first effort is to have fine thrifty seedlings not too large but to stand regularly in the row from three to four inches apart, rows four to four and a half feet. We commence as early in August as possible, generally the first week have the branches and leaves all cleaned off for six inches up the trees. Clean out all clods, weeds, etc., so that there will be nothing in the way of the workmen; the buds are cut the night before they are wanted and spread out on grass, well wet, with leaves on. Then early in the morning the leaves are cut closely to the eyes of the bud; the buds are kept in a wet cloth in the shade at the nursery. The budder wraps up in a cloth enough sticks or limbs to bud several hundred and carries them tied fast to his waistband by his side; he takes out a stick holds it in his left hand, with lower end from him, and places his knife—which may be any kind with a blade pretty thin and of good quality,—about half an inch below the bud; then with a drawing cut—gradually deeper—cut about as far above the bud; cut about half way through a medium sized stick, not so deep in a larger one. Take out the knife and cut crosswise of the limb, just through the bark, about half an inch above the bud, making a stout bud about one inch long; place the point of the knife within one or two inches of the ground on the seedling, making a cut upwards just through the bark about one inch long; then make a cut at the top of it crosswise making a T shaped cut after it is done. In making the cross cut, the knife has to have a certain twist which throws open the bark enough to admit the point of the bud without the aid of bone or quill. Now take hold of the bud, cut on the limb with thumb and

fore finger of the right hand and twist it sideways and it will come off, leaving the wood cut with it on the limb; then thrust the lower point of the bud in the cut in the seedling fully half way in; then with thumb-nail, or side of the thumb, push down, so that the bud just fits in the stock. We tie with bass matting, cut about one foot long and in strips quarter of an inch wide, making three or four wraps and tie in a single knot in front of the bud. The ties have to be loosened in ten days to two weeks, according to the growth of the tree. They are slit by the knife about half way up of the mat, directly back of the bud. It does not injure the tree by the knife cutting through the bark. After this there is nothing needed until the next spring, when the tops are cut off close above the bud, any time after March 1st until the buds begin to grow. Now this is our mode, but it depends a great deal on the performer, who must strain every nerve and guard against every false motion, making as few as possible to do the work. It takes time and experience to get so that one can set 5000 buds properly.

SHELTER FOR ORCHARDS.

BY JAMES M. HAYES, DOVER, N. H.

We have noticed of late quite a number of articles in different publications in regard to shelter for orchards, the most of them taking the position that shelter, in a majority of cases, is injurious to fruit trees; that orchards do much better where the wind and air can circulate unobstructed through them. My experience leads me to accept these views in the main. But, stop, in advocating such ideas are we not treading upon new ground? Have not the horticultural Solons been teaching for years that the only path to success in fruit culture was by protecting our orchards from the north and west winds? Now, some of the best orchards I am acquainted with are planted upon a northern or western exposure, where the full force of the winds are felt. I have a pear orchard set in a similar position which has grown well and produced excellent fruit, and very few of the trees have died from blight or any other cause; while I am acquainted with an orchard near by that suffers more or less every winter; every spring some of the trees are found dead, caused by freezing and thawing during the winter. This orchard is in a warm position, protected from the cold winds. The sap in the trees freezes, and then

when the sun in warm days thaws it the tree is ruined. This is the disadvantage of too warm positions. Then I would say to some who are deterred from planting orchards because they consider their locations too bleak and cold, try a few trees and you may find you have one of the best positions for an orchard—better, I believe, than a warm sheltered valley.

GRAPES AND PLANTS.

BY H. CORBETT, GARDENER TO MRS. RESOR, CLIFTON, CINCINNATI, OHIO.

There seems to be great difficulty found in growing grapes and plants together. I have had good success in growing both, and will give my experience to your correspondents, hoping it may be of some benefit to them.

Grapes and plants can be grown together in the one house, whether it be used as an early or late vinery. I am convinced that either house may be run and kept at any temperature the person in charge may deem proper, even from the forcing of roses or any other plant requiring a high temperature down to any kind of half hardy plants, and have good satisfaction from both, if he has ever had practice with the vine.

Now J. H. in his article says he keeps his temperature from thirty-five to forty degrees in order to keep his vines dormant and the plants just growing, which may be all that he cares to do, or has ever tried to do. Now whoever will try my system will find it give satisfaction.

Taking the late vinery—after the vines are well ripened and pruned—take them from the wires, laying them along the front of the house, about nine inches from the boards, wall, or glass, keeping them as near the ground as possible, so that they may be covered entirely over with soil about four inches deep. This covering of soil will keep them back much longer, and also prevent the mice from eating the eyes. After covering them form a box around them, building in front as high as is needed to cover the stem of the vines, and about twelve inches wide. Then board over the top so that they are entirely closed in. If your house has a glass front then loosen a few panes of glass so that they may be easily removed on a warm day to let in ventilation. If made of boards, make sliding ventilators; if walls, then put in round tin ones, with a cap to let in or out. This done, you can turn on your heat and run the houses to any temperature you

like, without any ill effect to the vines. Now the main thing is to watch that they do not get too cold. This is done by leaving the top board loose, so that on severe nights you have the advantage of raising it two or three inches to allow it to be kept just within the freezing point. The same system answers for the early vinery, only they need not be covered with soil.

Perhaps some will say: How shall we get old vines down in that position? A vine is easily put in any position, and once or twice down there is no trouble. I have always found it best to put them down, whether the house be used for any thing or not; for in starting a vinery they should be bent in the shape of a bow, which causes the eyes to push or break more regularly than if they were tied straight up the house. I would also advise J. C. S. to take out his old vines and replace them with young ones, first being careful to prepare a suitable border, as that depends greatly on the success of grape growing. If J. C. S. would start his own vines from single eyes in February, planting them in the border in the latter part of May, by careful attention he can average two or three bunches from each vine he wishes to fruit the following year. This is done by planting extra thick—every alternate vine being the one to fruit—allowing it to make a run of six feet, then pinch and keep it there in order to swell the wood and buds, allowing at the same time the permanent vine to make all the cane it can to encourage it with root action. I have the past year replanted the vinery on this place with vines started from single eyes last March, and they average from fourteen to twenty feet. I intend fruiting every alternate vine, allowing it to stand until such time as the permanent vine is strong enough to fill its place, or a good rod from top to bottom, giving good crops, and with the boxing back, a good show of any plants you choose to grow. If an early vinery is started in February, it will be the middle of March or beginning of April before they will injure the plants by shading too much, and by that time the half-hardy plants may be set with safety in protected cold frames and pits, allowing the more tender plants to remain until such time as the weather is suitable for them to be set out of doors, and found to be no more injured than if the glass was covered with white-wash or canvass.

If you find this of any service to the MONTHLY I will give my experience on the formation of vine borders and their growth in general.

THE NEW GRAPE LADY WASHINGTON.

BY J. G. BURROW, FISHKILL, N. Y.

Having been associated for nearly two years with the originator of the Lady Washington,—Mr. J. H. Ricketts of Newburg, N. Y.,—in cultivating and propagating his seedling grapes, and now being pecuniarily disinterested, I have had an opportunity of observing their habits, and testing their qualities from day to day possessed by few and perhaps no other person; hence I am prepared to judge understandingly of the merits and demerits of this and other seedlings of his production, and under these circumstances I venture to offer the following remarks:

The Lady Washington is a cross between the Concord and Allen's Hybrid, the former being the female parent from which it imbibes the majority of its characteristics as you will observe by the following description:

Vine, vigorous, hardy, and productive, resembling Concord in habit of growth, wood, and foliage; leaves, large, thick, downy on the underside; bunch, very large, compact, generally double shouldered; berries, medium, round; color, semi-transparent yellowish amber, with a tinge of delicate pink suffused over the sunny side, and covered with a thin white bloom; flesh, tender, juicy, sweet, few seeds, and almost without pulp; skin, thin, but sufficiently tough to pack and carry well; ripens about the time of Concord, and is a promising grape for the vinedist and the amateur, and I predict for it a brilliant future. Should you consider these remarks acceptable, it will afford me pleasure to describe other varieties of Mr. Rickett's origin.

EDITORIAL NOTES.

PAPAW AS A FRUIT.—A correspondent of the *Mobile Advertiser* says:

"The Papaw in its wild state is very popular as a fruit, most persons preferring it to the Banana, and still, strange to say no effort worthy of mention has yet been made to tame it and bring it into culture."

It is news to us that the Papaw is "popular as a fruit" in its wild state, and that "most persons" prefer it to the Banana. The writer has seen the fruit under the trees in large quantities along the Susquehanna River, quite near enough to large populated places, without any indications of "popularity" and where we are

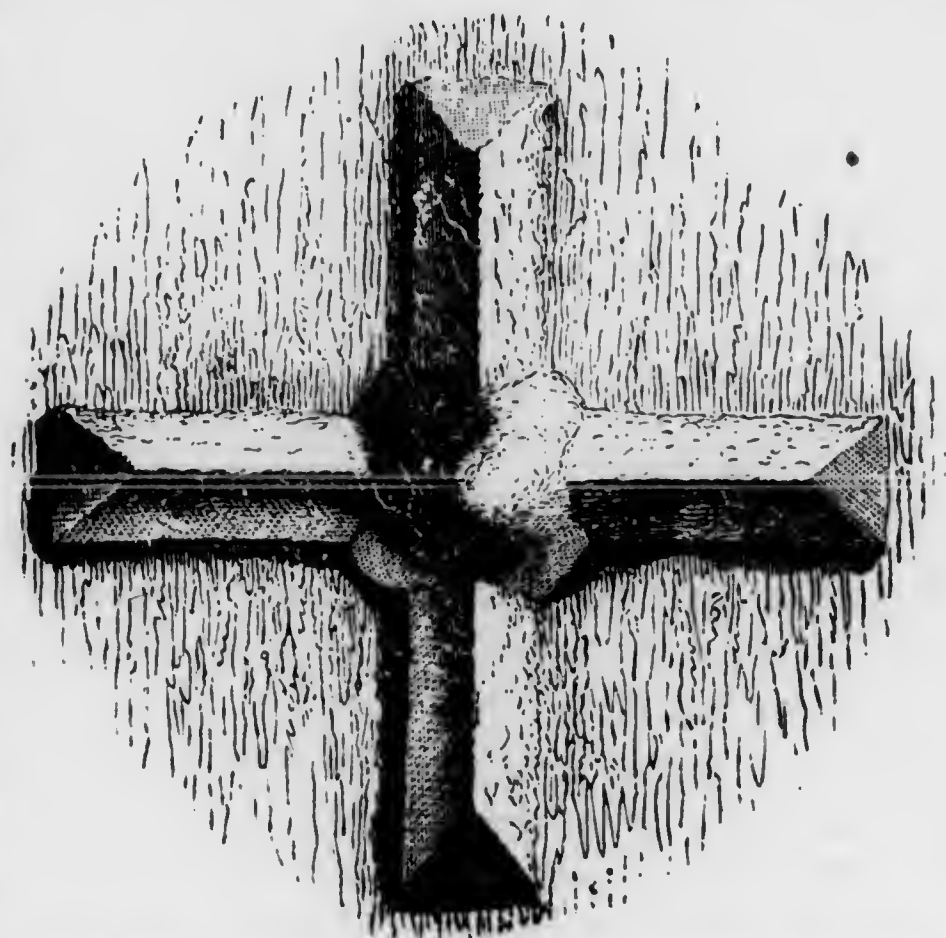
quite sure a lot of bananas would not lie undisturbed very long. We have heard a few persons say they would "as soon" eat them as bananas, and indeed there is a slight banana taste to them which is far from being disagreeable. But while one can almost make a square meal from bananas, two or three papaws will be found quite enough at a time. Though the Papaw will hardly make any sensation as an "addition to our list of fruits," it is however a nice little thing to have, and a tree or two in one's garden will be worth planting.

FIG CULTURE.—Mr. Geo. F. Needham of Washington, D. C., has given an essay, in which he wonders why fig culture is not more general at the North. They only need a little winter protection. He says:

"In the Spring, at time of corn planting, throw up one or more ridges eight feet high in the centre. Stake off on the top of this, distances ten feet apart. At these stakes dig holes at right angles to the ridges, say two feet long and ten inches wide. Throw the top soil in a pile, and throw the sub-soil away. Replace the soil in holes in the form of a mound one inch below the level in the centre and six inches below at the ends. Then separate the roots into two parts. Set the trees at the centre point, with the roots extending right and left down the mound. Fill up with any good soil and tread down thoroughly. In the Autumn, before danger from severe frost, prepare the trees for winter quarters, by cutting the roots growing lengthwise of the ridges with a sharp spade, not disturbing the original roots that were planted. Lay down the trees, lengthwise of the ridge, pegging down the branches that may need to be, then cover with earth, in this latitude two inches deep. In that of Boston four inches deep. And no matter how old the trees, by this method of planting they are laid to rest very easily. Only with older trees, after the branches are pegged down, it will be best to fill in the interstices with leaves and then cover as before. I think I hear an objection "too much trouble." We do not hesitate to grow other luscious fruits on that account; and the necessity of winter protection, will be atoned for from considerations before named. It cost about one cent each to protect the trees of my fig orchard this fall. A man and a boy laying down and covering over a hundred per day. In the Spring, at the time before noted remove the earth from the trees and raise

them to their positions. Thus it will be seen that the care of the trees is not great and the whole operation is quite simple. The unripe figs that were buried with the wood will form the first crop of the next year."

We sympathize with Mr. Needham. The dread of a little trouble in laying down should be no more bar to fig culture when we have only to dig and house them. Europeans whom we so much envy for their fine figs often have to pro-



tect them. We give the annexed figure from De Breul, showing how carefully the branches are bent down, arranged and covered.

RARE AND GOOD PENNSYLVANIA APPLES.—The Berks County Agricultural Society recommend the following little known Pennsylvania apples as particularly worthy of attention. York Imperial, a great favorite in Lancaster County; the Phillipi, a fine apple largely grown by Ezra High, Esq., and the Frau Rothrock and Champagne, grown by Eberhard Barth. The Phillippi, Frau Rothrock, Champagne, Dumpling, Baer, Heister, Hepler, Yost, Gewiss Good and Ritter's Sweet are varieties of Berks.

THE TOMATO DISEASE.—We learn from an exchange that "in France, for several years past, the Tomato plant has been subject to a disease which ruins in a week the most promising planting. One writer insists that it is owing to the long continued wet weather, but the editor of the *Revue Horticole* does not accept this as the sole cause. The plants which were the most protected by wall seem to be the first to die, while those in open spaces are less

affected. This tomato disease, so far as we are aware, has not made its appearance in the United States." But we have seen what we suppose to be the same disease in the tomatoes for some years past. So far as one might judge from the effects it is the same or very closely allied to the verberna rust, and is possibly some form of *Perenospora*.

TOBACCO.—The statisticians are reporting a wonderful decrease in the use of tobacco the last year or two. A Mr. James of Reed's Landing, Minnesota, probably believing this to result from a decreased supply instead of a diminishing consumption, has taken out a patent for a "substitute" as follows: Spikenard, red clover, hysop, hops, slippery elm bark, tarred rope, pennyroyal, mullein leaves, kiunikin, wild cherry bark and ginseng, "as and for the purpose specified."

NEW OR RARE FRUITS.

BASSETT'S AMERICAN PLUM.—This native seedling plum which we have already noted as a most abundant bearer, is stated to be much less liable to suffer rot after being "stung" by the curculio than the common garden plum, which, as our readers too well know is "gone" after the curculio deposits its egg therein. This is one of the best features of the American class of plums, and we are glad to see attention turned to their improvement.

HIGHLAND BEAUTY APPLE.—March 22d, we had samples of this variety in admirable condition; but we still believe that in view of the immense number of varieties of apples known, it is not advisable to disseminate another unless it has some striking peculiarity. This is a small sweet apple, and though good to eat, is not better than others.

THE MARSHALL PEAR.—We are glad to hear from Mr. Foster that there is inquiry for this variety, described sometime since in our magazine, as we believe it is one of the most valuable of our native seedlings.

MINER'S SEEDLING GRAPES.—The late T. B. Miner, at the time of his death had about completed some experiments with grapes covering several years before. Out of 1500 seedlings Mrs. Miner has selected twelve which have been named, and will be distributed this Spring.

HASKELL'S GRAPES.—Mr. George Haskell who has been so successful in raising improved seedling grapes, has decided to put twelve of the best on the market. Mr. Haskell has spent much time and money on his experiments, and it will be a satisfaction to those who wish well to horticultural improvement, should their trial under varied circumstances result in widespread popularity.

RICKETTS' HIGHLAND GRAPE.—Most persons know of the famous Ricketts' Seedling Grapes. Unquestionably they are the greatest step forward grape improvement has made. It has been a source of trouble to many that improvers have not been paid as well as their labors deserve. Mr. Ricketts has endeavored to get some little return by selling the stock of any one seedling a buyer might prefer to one person, leaving to that one person all the profit beyond the advertising and propagating expenses that can be made. Messrs. Asher Hance & Sons have in this way purchased the whole stock of the Highland, certainly one of the best of Mr. Ricketts' varieties. We hope that their venture will be a successful one, as if they are encouraged it may induce others to venture on some others of Mr. Ricketts' Seedlings, and thus in some measure bring him the remuneration he so well deserves.

THE GIBBON'S PEACH.—This is a California seedling, and is regarded there as of much promise. It is thus described:

"The leaves have uniform glands. The fruit is large and oval; the suture runs on one side, and terminates by an acute swollen point at the top. The skin is clear yellow, showing a fine dark red cheek when fully exposed; flesh yellow, melting, juicy and delicious. The fruit ripens about the middle of August."

SCRAPS AND QUERIES.

THE LE COMPTE AND THE SAND PEAR.—Mr. Chas. Downing writes: "W. F. H., asks you if the Le Compte and Kieffer's Hybrid are identical? They are not the same. They are quite distinct. Though the Le Compte is derived from the Sand Pear, its origin is obscure. It is generally believed that the original tree came as the true Chinese Sand Pear, from a New York nursery to Major Le Compte, the well-known botanist of the last generation. It may have been Prince's Flushing nurseries." The

trees are easily raised from seed, and this may have been a seedling tree, and the parent have derived the pollen from one of our regular garden sorts as the Kieffer did. If we are to have a new race in these Pears, would it not be worth while to retain the maternal name? Thus Le Compte Sand Pear; and Kieffer Sand Pear. It will distinguish the race from the common kind.

IMPROVED DEWBERRIES.—A. C. L., Madison, Ind., says: "Much has been written concerning the Dewberry, but after careful search I have never been able to find any one who has them for sale. Do you know of such a person?"

[Of true Dewberries no improved kinds are known under culture. The Wilson's Early has some relation to the Dewberry.]

WHITE ROSMARIN APPLE.—Mr. F. J. M. Otto, Sandusky, Ohio, writes: "I sent you with to-day's mail an apple, the grafts of which were imported from Tyrol by Mr. Grass of this place. Name of apple, White Rosmarin. In Austria this apple is highly prized for its keeping qualities, its high flavor, aroma, and color. They bring in southern Tyrol from 15 to 25 cents each, for shipment to St. Petersburg. They grow there, in Tyrol, to perfection. I have

grafted some old trees which bore here last year, very full, and every thing said about this apple proved true. The specimen I sent you is rather small, I have another specimen painted, which I will send you as soon as finished; this one I send you merely to taste. This apple grows stronger here than in Tyrol. It has done so well here and withal is such a delicate fruit for table or kitchen use, that I thought it might be of interest to you. Fruit, scions, or trees are not for sale."

[We regard this communication as very interesting, as probably fixing a foreign origin to a very common apple in the old German settlements about Philadelphia, known as the "sheep nose." So far as we can judge from a single specimen, and without the Philadelphia specimens immediately before us for comparison, the two are identical. It would appear also that this kind sometimes goes by this name in the Old World, so that even the name "sheep nose" may be an importation. At least an excellent German gardener in our office at the time we were examining it, without any inquiry from us, volunteered his expression of pleasure at seeing the "sheepnose" of his own land also in ours.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

VERNACULAR NAMES OF PACIFIC TREES.

BY PROF. C. S. SARGENT, BROOKLINE, MASS.

Either you have quoted him very badly, or Mr. Lemmon makes some bad blunders about his Sierra trees. *Abies magnifica* is Red Silver Fir as he says; but the White Silver Fir is *Abies concolor*, which may well be called the White Fir. *Abies grandis* does not grow in the Sierras, and I doubt if Mr. Lemmon has ever seen this tree growing. Of its economic value I know nothing. It is a tree of the northwest coast, and only reaches California in some of the northern coast counties.

The Western Tamarack is no Tamarack at all in the Eastern sense of the word, but *Pinus contorta*, the name having been given, I fancy, by

Eastern settlers, from the resemblance in form to the Eastern Larch.

Larix Occidentalis is a far Northern tree, and only comes into the extreme northern counties of California.

[The names are just as Mr. Lemmon applied them. Indeed it was chiefly to draw attention to this general confusion of "popular names" that we referred to the matter at all.—ED. G. M.]

TIMBER OF KENTUCKY COFFEE.

BY BOB'T W. FURNAS, BROWNVILLE, NEB.

Noticing your inquiry in the March number of the GARDENER'S MONTHLY in relation to the uses of Kentucky Coffee Tree timber, permit me to say it is one of the best varieties of timber for posts. It is equal to mulberry for such pur-

poses. Prof. Collier, of our State University, finds it, too, one of the most valuable timbers for turning uses. It is a hard, close, compact-grained wood. It is indigenous to this region, growing in great abundance in the Missouri River bottoms, and along the smaller streams. It is being planted largely on our open prairies, and does well; we regard it as valuable in all respects.

OUR FORESTS.

BY JOSEPH KEMP, HOLLIDAYSBURG, PA.

Much has been said in Agricultural Societies in reference to the rapid cutting away of the full-grown trees in the forests. Some action has also been taken in the legislature to stimulate tree planting, and a very curious plan has been reported by a committee, that seems to look only to the planting of shade trees along the road, to be paid for at the expense of good roads.

I have for about fifty years past, been watching the result of extensive chopping of entire forests for charcoal for iron works, and noted well the volume of water in the streams along the foot of these wooded regions, then and now—I mean before each of the choppings and afterwards, and to the present time—and have arrived at the following conclusions, which I give you with some hesitancy, knowing that so many intelligent gentlemen have deprecated the destruction of timber on its supposed unfavorable effect upon rainfall and moisture generally.

In the first place, the very diminutive acreage cleared and brought into cultivation can have no appreciable effect, if any at all, it had, it is far more than compensated by the products of that soil so subdued and made to yield food for man.

Then, secondly, we look into the forest mountain timber land, from whence the lumber of commerce comes. But a small percentage of trees are fit for the lumberman's use at any one chopping or going over. All the young, crooked, or any way defective are left, and the quite young are far more thrifty and rapid in growth for having more room, sunshine, and air. Thus in a score of years quite as many trees may again be ready, having attained marketable size.

And now for a question of rainfall and keeping up mountain streams. I contend that where all the old trees are chopped away, the sprouts from the stumps, and young trees springing up

at once, soon shade the ground more effectually than when old trees smothered out all such growth. Then again, we know that warm air moving up from damp earth is the parent of rain; but the tall trees intercept the sun's rays high up, leaving the earth cooler than if its rays rested on bushes, or came nearer to the earth. Hence I account for the increased flow of water from the springs and mountain rills coming out of the thick undergrowth or young timber in the old choppings.

So much for the dreaded diminution of rain. I really do think it is advantageous to the wooded region and contiguous country to have all the old timber cut down. I do know that if you desire to perpetuate a chestnut forest you must chop it off clean every twenty-five years. If you do so, on every stump from five to eight healthy vigorous chestnut trees spring up, making the best of rail timber. If you do not so chop them away, the old tree dies at the top, the heart rots, and the forest perishes and is succeeded by worthless pin oaks, black oaks, etc. White and yellow pines also come up rapidly wherever the older trees no longer overshadow them, and absorb the carbonic acid gas absolutely essential to all tree growth. I am far from thinking that in thirty or forty years there will be no pine timber for man's use. Iron works that began to chop away timber fifty or sixty years back, and chopped over the land a second time have now more timber, healthier and sounder, than they began with in the virgin forest wherever the forest fires were kept out.

And herein lies the great evil. Young timber standing quite thick produces a vast coat of leaves. These leaves drop to the ground; the wind cannot blow them away. Many places ten to twelve inches of a compact coat of leaves are secured on the ground and in process of forming valuable mould, in time enriching the land. All this is gained by cutting away the old forest and stimulating a thicket of young timber. Some of it must die—always will—when it gets a little behind its compeers in the race upward. Now this vast array of leaves makes the whole forest a vast tinder box, and when fires in the fall, or worse, in the early spring, on a windy day are started it makes fearful havoc, killing all the young tender sorts, such as chestnut, maple, pine, white oak, etc., and indeed almost everything perishes. Great uneasiness is always felt by owners of such timber lands on windy days in the spring before the leaves are out.

The destruction of young timber is a great loss directly to the owner, and remotely to the farmer in that region and to the general wealth of the country. There is a rapid process of enriching the land going on while these leaves are saved from the devouring fire, that in time will show wonderfully in its productive capacity when under the plow, far ahead of that which for long years was clothed in old trees with no undergrowth, and the leaves always blown away.

To this end legislation is more needed. If we can have laws, and an effective mode of quenching all such fires quickly, we save a thousand trees to one that ever man by his hand will plant under any law that may be enacted, and cost far less. These fires can always be arrested at the start, before they acquire great extent, and certainly the first night when the moist air and lulling of the wind gives full power to man. But it must be attended to in time. Men who volunteer to go to extinguish it are now paid out of the fund arising from the dog tax; but I am of the impression even that is now repealed, leaving no combined aid. The man who, by his carelessness may start it, if the wind favors him, lets it go upon his neighbor's land. Proper regulations by law should be made making such persons amenable for all damages, and some obligation resting upon every one contiguous to rush at once to the task of extinguishing it, and pay out of the county treasury one dollar to each man for his night's aid in its final extinguishment.

I believe this is a practical question, and my object is to treat it in a practical way, however I may run counter to some of the rain theories. I hope the committee at Harrisburg may see this article, if you see fit to print it in your valuable journal. My opinion is that the planting of some shade trees along the roads is excellent for ornamentation and general comfort, but for the end in view is wholly inadequate; and that we have thousands of trees set out by nature and all we have to do is to protect them from fire.

EDITORIAL NOTES.

COMMON NAMES OF PACIFIC EVERGREENS.—Mr. Lemmon says, in the *Pacific Rural Press*, that "Monterey Cypress" is *Cupressus macrocarpa*; "Yellow Cedar," a valuable timber tree in the North, growing 80 to 100 feet high, *Cupressus Nutkensis*; "Ginger Pine or Port

Oxford Cedar," a noble tree 100 to 150 feet high, yielding valuable aromatic timber for cabinet work, *Cupressus fragrans*; "Giant Arbor Vitæ," 200 feet, with a diameter of 10-15 feet, *Thuja gigantea*; "Post Cedar," timber splits easily, endures exposure to weather, as fence posts, or takes a fine polish in cabinet work, *Libocedrus decurrens*; "Red Wood," timber the well-known light and durable Red-wood, *Sequoia sempervirens*.

THE PROFITS OF TREE PLANTING.—While those who believe that it takes a whole lifetime to get a wood lot into profit, and who are spending no end of time and effort in getting "legislation," the more practical are taking the advice of the GARDENER'S MONTHLY, and are planting in those places where timber will certainly be wanted; and with that sense and judgment which selects those kinds just suited to local soils and local wants, are making handsome profits long before their last wills and testaments are read. This is what the San Francisco *Bulletin* says:

"With the next good soaking rain the tree-planting season will fairly begin. Those who planted forest trees five years ago, either in the fields or by the way side, are beginning to reap the benefit, both in the augmented value of lands, and in the fuel which these trees furnish by cutting in and trimming up."

There are thousands of places in the Union where timber is a drug, and will be for years, and which it is wise to burn off and plant with more profitable crops; on the other hand, there are numberless places where forests could be profitably planted, and which would pay for the planting in five years; make a handsome profit in ten; and yield a nice little fortune in fifteen; but we would not answer for these results where good sense and judgment are lacking.

IMITATION WALNUT WOOD.—The following very old plan of staining wood a walnut color is revived as new "from a Belgian journal," but is as useful as if only discovered to-day:

"The wood, first thoroughly dried and warmed, is coated once or twice with a liquid composed of one part by weight of extract of walnut peel, dissolved in six parts of soft water, by heating it to boiling, and stirring. The wood thus treated is, when half dry, brushed with a solution of one part by weight of bichromate of potash in five parts of boiling water, and, after drying thoroughly, is rubbed and polished. The color is thus said to be fixed in the wood to a

depth of one or two lines, and in the case of red beech or alder, for instance, the walnut appearance is most perfect.

TIMBER PLANTING IN CANADA.—We in the States often think that we shall have to look to Canada when our own supplies of timber are gone, but it would appear by the following from the Canadian *Farmer's Advocate* that they fear getting behind us:

"What are our Canadian railway companies doing in the way of planting? The United States railways are enhancing the value of their property by planting along the lines. The B. & N. Railway in Nebraska has 186 acres planted—460,000 trees, and other railways in like proportion. This is done in the West not only as a means of inducing emigration by demonstrating the feasibility of timber-growing in a few years, but also as a protection from drifting snows along their tracks. On railway timber planting the Nebraska *Farmer* says:

"One of the great mistakes, as heretofore stated by us, is with the planting for wind-breaks. The trees are usually planted in straight lines, often only a single row, seldom more than two or three, and almost always too near the track. The trees should be planted at such a distance that the drift, in lodging to leeward, will fall short of the track. They should also be planted rather open than close, and be of sufficient breadth that the drifts may lodge within them, or partially so. In fact, the breadth of the planting should correspond to the average depth of the snow-fall and the nature of the drifts to be contended against. Of course in certain localities nothing less than a forest would suffice, yet these are only isolated instances, as where tracks have to be walled in to prevent snowslides. It is to be hoped that a new impetus will be given to tree-planting for protection this and succeeding summers, especially by railway companies."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

A FEW MAGNIFICENT SINGLE TREES OF CALIFORNIA.

BY CHARLES H. SHINN, OF NILES, CAL.

The feeling which moves us when we gaze upon a single tree which nature has planted and trained wholly without human interference, is akin to that lofty admiration which mountain heights, ocean depths, and the ceaseless stars produce. Simply as a monument of many years growth, and as in itself imposing, such a tree is memorable. The few distinguished trees of every species, are, however usually found in picturesque and rarely beautiful places, when the surroundings harmonize completely; where shadows lie, and ferns gather underneath; where clouds drift overhead, and winds pass with their breath of healing from far off crags; where other trees of royal line are themselves pages to the one unapproachable and majestic tree.

It has been my fortunate lot during wild rambles and long journeys in both the Coast Range and the Sierras, to find a few trees which seemed to me worthy of record. These measurements made often with a knotted handkerchief cannot be vouched for as mathematically exact to the fragment of an inch, but I have conscientiously endeavored to make them as accurate as possible under the circumstances.

In the mountainous portion of San Luis, Obispo County, and nearly at the head of a narrow little valley used as a stock range, and seldom or never visited except by vaqueros and sheep-herders, there stands a single White Oak tree, the tallest and most symmetrical I have ever seen. The first glimpse is obtained when coming around a spur of limestone rock, some two miles south, and from that time on it becomes each moment more conspicuous, rising above sycamores, cedar, lesser oaks, and trees of every description. At this distance the trunk is hardly seen, but the magnificent crown rises in a spire, compact and perfect, some three

times higher than it is thick, and beautifully rounded at the top. Approaching closer, until one by one the lesser trees and puny shrubs shrink aside, leaving a broad open space around the knoll on which this royal tree grows, we are chiefly impressed by the wonderful proportion of trunk and head. The body of the tree is an arrowy column without a ridge or knot, scar or furrow, crook or blemish; the crown rises as the curves of an antique vase, each line and limb blending in harmony. I walked around the tree several times, but from no point of view was the slightest irregularity discoverable. There was no broken limb or withered leaf, it was in the prime of its superb existence. I climbed a point of rock from which I could overlook it, and the perfectness of every outline was still the same. After I had feasted eye and fancy with this rare symmetry, I bethought me that in after years a measurement might be valuable, and these were the figures: Girth of trunk, five feet from the ground, thirty-four feet lacking one inch; distance to the lowest branches, a trifle over twenty feet. I had no way of obtaining the total height of the tree, but after observing its shadow carefully, and the comparative heights of other trees, I placed it at seventy-five feet.

In the northern portion of the Coast Range, and in the County of Trinity, there is a remarkable specimen of the Madrona tree. Trinity County is one of the most unfrequented parts of our State, and is full of wild scenery and strange geological formations. Its flora also, especially in the ferns and lilies is unique and but slightly studied. I took a mountain trail from the old mining town of Douglas City, one morning, and went westward, towards Humboldt County. After many hours of travel I found myself where several trails met, and hardly knew which one to take. Hearing footsteps, I waited, and soon a lean, gray-haired, buck-skinned man, who proved to be a pocket miner, came in sight. Of him, inquiring, I received this notable reply:

"Jest ye ride on up that crumlin' slate ridge, an' bime-bye ye'll see the crookedest tree thet ever grow'd. Then ye take the lef' hand road."

Half a mile further I came upon a seamed and broken rock, looming up like the prow of a petrified Great Eastern. Against its gray front a flattened, twisted, crawling and interlaced pattern of intense scarlet crowned by a mass of glossy leaves appeared. It was the "crookedest tree that ever growed," and it was a Madrona,

which, starting at the base of the rock, had followed an open crevice and almost filled it with branches, then reaching the top had made a beautiful mass of foliage, and finally, to reveal its own patient and curious work, had split off the face of the rock, whose fragments were lying at the base. In point of size the tree was remarkable. Ordinarily the Madrona does not grow over one foot in diameter, and nine inches would be a fairer limit; but at one point, a few feet from the ground, this tree had found room to grow naturally, and there it was seven feet in girth. Some of the larger limbs were several feet wide and only a few inches thick; numberless times they had touched and grown together or past each other, or twined back, forming circles. Some limbs had entirely lost their rich color, and others were dead, the struggle for life having evidently been intense, but the few which had reached the top safely had broadened out under the full southern exposure, and made, as I said, a very beautiful head. Having crumbled off the irksome surface of the rock, the tree was making efforts to sprout at the base, and a few green leaves were already visible. Doubtless long ere now the whole wall of rock, which appeared to be about twenty feet wide and thirty feet high, is completely covered with the foliage of this natural espalier tree.

Along the western edge of Shasta Co., and on the higher levels of the Sierras, is a belt of virgin forest of sugar pine, *P. Lambertiana*, mingled with *Librocedrus decurrens* and other stately species. Beside a narrow wagon road which winds through these fragrant woods, there stands a single large sugar pine, which is called the "Cannon Tree." It is not in itself at all remarkable, but thrust at right angles through its trunk, like a pencil through a bean pod, is a straight log some twenty-five feet long and two feet in diameter. The growing pine has closed completely around it, and only a slight scar is visible. The "cannon," blackened on the end by some former forest fire, is about ten feet from the ground. If there has been a union of two trunks above the log, it leaves little trace, and the simple mountaineers puzzle their heads in vain over the mystery. Not far from this place there stands a Douglas Spruce, which girths nine or eleven inches, a great size for that species. Lower down on the ridge we measured a *Pinus Torreyana*, whose immense buttresses caught our attention. Girth, five feet from the ground, sixteen feet nearly. At the surface this would

have been increased one-half at least. The rosin which abounds in this tree was running down in yellow streams and forming little piles at the base. Perhaps when trees are numerous it may possess an economic value, and so utilize some of our barren lands.

DICENTRA OR DICLYTRA.

BY G.

Now that the name *Dicentra*, expressing Borkhausen's meaning has been made and come into use, we shall stick to it on the ground that he meant it, as he says, to denote two-spurred, and meant the Greek of it. If it had been let alone, which would have been as well, we might probably have given one, using *Diclytra* as an unmeaning name, which is as good as any. But it is awkward to call that an unmeaning name, which the author says has a meaning, gives the meaning, and gives a wrong word. Bernhardi though he did only the fair thing to make Borkhausen write what he should have written according to his own statement.

INTRODUCTION of the CERCIDIPHYLLUM.

BY THOMAS HOGG, NEW YORK.

Permit me through your columns to thank Prof. Sargent for his frank disavowal of any thought of claiming for his friend, Col. Clark, more than was his due. To explain how his words implied anything else, I would refer him, in addition to the sentence in which he alleges he is "made to claim by inference," to the beginning of the next paragraph of his communication in your January issue, where he remarks that "some of Col. Clark's other introductions," etc. These words certainly convey the idea that he had introduced what had been previously mentioned.

Prof. Sargent apparently makes a distinction between the words "introduced" and "first introduced." I can readily understand that if a plant has been at any time introduced into another country and afterwards lost, it may be re-introduced, or introduced a second time, but "introduction" certainly implies "first introduction," or else it is not an introduction at all. An additional number of the same thing at a later period would not be fairly expressed by the word.

It gives me more pleasure to respond, as far as in me lies, to Prof. Sargent's request for information concerning the *Cercidiphyllum* than

having a war of words. Let me first remark on its correct orthography. Referring to "Miquel's *Floræ Japonicæ*," fol. 304, I find it is spelled as above, and not *Cercidophyllum*. It is one of the largest growing deciduous trees in Japan, sparsely inhabiting, as far as has come under my observation the interior mountain ranges of Nippon and of the island of Yesso. In this respect it is, with some few other examples of arboreal vegetation peculiar, the straits which separate the two islands, making a wide division in their flora. Being at home in so cold a region it would be expected to be hardy in our latitude, as it has proved to be with the single specimen I sent to my home. Seeing it only while journeying through the country, and at a season of the year when not in flower, I am unable to describe its peculiarities in that respect. Neither am I aware that its timber has any special value for building or in the manufacture of articles of household use. I concur, however, with Prof. Sargent in considering it as giving good promise of a deciduous tree of the first importance, and congratulate him on receiving a supply of seed of it, as hitherto it has proved a refractory subject for other methods of propagation.

EDITORIAL NOTES

CATALPA SYRINGÆFOLIA AUREA.—This and not *Betula syringæfolia aurea*, should have been the name of the rare plant noticed in Parson's collection.

FERMENTATIVE POWER OF THE PAPAW.—The true Papaw is the *Carica Papaya* a West Indian fruit tree. That meat hung up in it speedily becomes rotten has been well known for ages. But now that a Dr. Wittmack, "a learned German naturalist" has "discovered" it, all our papers are looking on it as a wonderful piece of news. But the fun is that they are imagining that our *Porcelia* or *Anona triloba*, the "Papaw" of the United States, is the plant referred to, and many will be the wonderful glances people will take next Summer of this innocent plant of "carnivorous" character!

SPANISH CLOVER.—Under this name this Mexican weed, which was first introduced among ballast as noticed by Dr. Chas. Mohr, of Alabama, is being widely sold in the South as a first-class forage plant. It is to the credit of

these Southern seedsmen, that though they have christened the plant "Spanish Clover," they do not try to make out that it is anything new, or that they alone have the "sole stock," but they honestly put the botanical name, *Richardsonia scabra*, in their advertisements.

THE WINTER ON EVERGREENS.—The attempts of the past age to fix the hardness of plants by the thermometer are now admitted failures. Different seasons, though of the same temperature, affect differently different plants; but as the low temperature may be accompanied by moist air or dry air, high wind or a still atmosphere, a bright sky or a cloudy one, or even the character of the preceeding summer as regards heat or moisture. In this vicinity our lowest temperature was accompanied by a violent hurricane. Stiff close-growing trees suffered very little, but those with fine open foliage or loose branching habit were badly injured. Thus the Irish Yew, the thick close growing variety, kept as green as grass, while the usually hardier American is burnt as by fire. The Hemlock Spruce, Lawson Cypress and similar sprayey plants also suffered severely. The injury to these, with the comparative immunity of others that usually suffer, is one of the interesting experiences of the season.

ARRANGEMENT OF ARBORETUMS AND BOTANIC GARDENS.—A correspondent says: "Absolute sequence of the orders is a myth in any garden in the world, nor can they all be represented, and even were it possible the orders are too numerous and too tough for the digestion of the ordinary student. The simplification of botany is a prime necessity in this or any other country, and it seems to me that an arrangement by great family relations would go very far towards doing this in gardens."

We go farther and say that such arrangements are not only "myths" in practice, but the attempts are absurdities. We study botany in these days by the systematic writings of botanical authorities, and we want the living specimens chiefly to verify what these authors tell us and to see for ourselves if we can observe anything new; of course when one is studying a genus it is convenient to have all the species near together, and in planting this may be remembered; but for this purpose it can make little difference whether one plant is twenty feet or two hundred feet away from another, the main point is to index or number the plots, and each tree in each plot so that the student can find what he wants

in a few minutes. Every tree and bush should have a number and a name; and every plot should have a distinct centene or millene of its own, so as to provide for additions when with the annual catalogue in hand, anything can be at once found without worrying about classes, orders, cohorts, alliances and so on which one must be an accomplished botanist, and not a mere student to understand.

The attempts to arrange botanic gardens as we would arrange dried specimens in an herbarium, in these days of accessible botanical books and cheap printing seem like the arrangements of country seats in paste-board, putty, and colored everlastings, and which often "take the first premiums" at country fairs.

SCRAPS AND QUERIES.

DOUBLE THALICTRUM ANEMONOIDES.—"A lover of wild flowers" writes: The inclosed specimen I have thought to be a double variety of *Thalictrum anemonoides*. The plant grows from three to four inches in height, and has no stem leaves except those that form an involucre around the umbel of flowers which are full double, pure white, and very pretty. Will you please examine and answer as to the correctness of this name in the *GARDENERS' MONTHLY*."

[The specimen is correctly named. It is not unfrequently found wild in this condition. We note them offered for sale in the catalogue of Woolson & Co.—ED. G. M.]

SUGAR FROM ASH-LEAVED MAPLE.—Mr. G. Wright writes: "I send you to-day by mail, a small cake of sugar from Boxelder. My trees are eight or nine years old, and about six inches in diameter. Three trees gave twelve quarts of sap in two days, and you have half of the sugar. Here we plant Boxelder on sandy and poor land where nothing else but Stock Pines would grow."

[The sugar was of very superior quality. The Common Silver maple also yields excellent sugar as well as the Boxelder, as the Ashleaved Maple is called. By the way we should be glad to know how this tree came by the name of Boxelder.—ED. G. M.]

DICENTRA SPECTABILIS.—J. K., West Chester, Pa., writes: "I hope you will excuse a remark in regard to the *Dicentra spectabilis*. When my first plant bloomed,—and that is over twenty-five years since,—I invited the late Dr. Wm. Darlington to come and see it, as he was

always pleased to see anything new. He came, and while admiring its graceful beauty, he noticed the name *Diclytra*, and remarked that was the name it usually went by, but that *Dicentra* was more properly the name, as it was so named

from the two spurs formed by the opening of the flowers from the centre. I have always written the name *Dicentra* since.

[See a note by a botanical correspondent in another column.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

PRACTICABLE AND IMPRACTICABLE GARDENERS.

BY RAMBLER, WYNNEWOOD, PA.

A correspondent on page 105 of the April *MONTHLY*, presents as he asserts some pretty rough facts in regard to gardeners, but it invariably happens that there are two sides to every subject. Does the correspondent referred to employ gardeners, or merely those who call themselves so; who usurp the name without the slightest claim to it good or bad?

It is well known that on horticultural matters, almost every person has or pretends to have a small smattering of knowledge, and it is generally those who have the least that are most anxious to exhibit what little they possess, and they are also most reluctant in their concessions to those who have more. I have in my day observed that it is frequently the fault of those who are employed in the laborious operations of horticulture, to be blamed for failure without being praised for success; and to be censured for casualties which they could neither foresee nor avert. Many people who amuse themselves with horticultural matters though zealous enough, reason themselves into conclusions as absurd as they are antagonistic to nature.

I think it will be admitted by all that the mind is more enlightened on any art by practice than by mere study, and the advancement of the same is hindered by an unquestioned submission to dictatorial decisions. The purely practical man is very often bewildered in the mazes of conflicting opinion which might be clearly illustrated by a single fact; provided that the fact and illustration together are not both obscured by a maze of metaphysical sophistry.

When we reflect how comparatively little the most enlightened can boast of, and how much must necessarily elude the diligence of the most vigilant observer, must we take for granted the judgement and verdict, simply because the same emanates from some illustrious amateur who can make an ostentatious boast of being the possessor of "fine oaks, broad fields and brood mares?" Our amateur friends should remember in their critical lucubrations, that there are many things in the rude school of self-experience that theory does not teach.

Endeavors to discover useful facts are always laudable; but we ought to be silent in regard to dubious results, rather than publish them at the risk of misguiding others. A man ought to deliberate when he is doubtful, and inquire when he is ignorant, nor ought he to proclaim a principle upon hasty experiments. Many people advertise for a gardener when in reality they want a porter, who of course fears God, and can carry a ton, and I am convinced should your correspondent feel disposed to make the inquiries, that he will with rare exceptions, find the gardeners superior to their places; yet the fact is unfortunately too true that they are indiscriminately judged, and the value set upon a gardener in this boastive "paper" country of ours, is very little more than that set on a common laborer; and before horticulture will flourish, we have to "study the comfort and pleasure of our employers." The same we think we know to be our duty, but why not suggest a mutual endeavor? Thinks the same authority, taste has nothing to do with the matter. The science and art of Horticulture, are not far enough advanced in this country with rare exceptions, for the gardener to have the privileges of studying the pleasure and comfort of their employers, inasmuch as it takes all our time to get through the rough work without

attempting the fine. I do not know your correspondent,—he may be an honorable exception,—but let him find out what many of us have to put up with ere he judge our conduct. Neither should he be controlled by the despotic opinionism of men whose pride, humor, interest, or inclination may lead into the indiscriminate criticism of subjects and things beyond their capacity, and not consistent with their belief.

EDITORIAL NOTES.

FAIRMOUNT PARK COMMISSION.—We have letters occasionally condemning various matters of detail done in Fairmount Park, and with which correspondents we mostly sympathize. But we always take comfort when we consider how much worse things might be. Although the management of the park is in the hands of a commission, the members are naturally subjected to an immense pressure on all sides, and as long as a commissioner is but a human being, it is only possible for him to do the best he can.

We are very familiar with the difficulties which surround a great public enterprise like this, and in this light only wonder that the results are as generally creditable as they are, and we would rather encourage the commissioners in the good they are doing than harass them for their mistakes; or perhaps more charitably for what circumstances make it impossible for them to do. And we are very glad to learn that there are a few steps of progress to be made in the park this spring, though the commendable economy of councils affords the park commissioners but limited appropriations. The superintendent, General Thayer, and Mr. Miller, landscape gardener, are busy in planting out trees in the park. Dr. Rothrock, professor of botany, on Wood's foundation, is to make a catalogue of the trees round Horticultural Hall to the foot of George's Hill, that they may be labeled and the catalogue may be printed. He is also to arrange the dry specimens of wood in the museum in Horticultural Hall. He is also to lecture on botany in that Hall every Saturday at 4 o'clock P. M., from April 20th to August 2d, at the cost of the Michaux legacy, by order of the American Philosophical Society.

EX-MAYOR HENRY.—We learn that ex-Mayor Henry's public life did not "terminate chiefly" with the term of his efforts to stop the running of street cars on Sunday. He was elected twice

afterwards, and moreover that his opposition was not personal but official. He still believes the law is against the running of the cars, but he believes the law should be modified, as public travel is among the public necessities.

We had no intention of passing on the right or wrong of the action. The GARDENER'S MONTHLY would not be the place for such a discussion. It was simply as illustrative of the changes which some author calls "the whirligig of time" produces in public opinion. When, however, so estimable a gentleman as Mr. Alexander Henry can be appointed to such a position as Park Commissioner amidst the general tendency to afflict all our leading offices with mere politicians with few ideas of office beyond the power it brings to control voters, the grateful public can well afford to let the past go, even were we not in some respects mistaken.

PROF. C. V. RILEY.—Most of our readers have learnt from the public prints, of the resignation of Prof. Riley and the succession of Prof. Cyrus Thomas to the position of entomologist to the United States Department of Agriculture. It having been stated that Prof. Riley abandoned the position from ill health, he publishes a card saying that he was never in better health, and that he gave up the position for personal reasons.

MR. S. L. BOARDMAN.—Mr. Boardman, one of the most intelligent and courteous of editors, gives up the position he has held for sixteen years on the *Maine Farmer*.

FLEUR-DE-LIS.—According to *Flowers and Ferns of the United States* the selection of the fleur-de-lis as the national emblem of France, was thus brought about: It is asserted in the old legend that it was sent to the French people from heaven by an angel, whose commission was addressed to Clovis, their first christian king. Clovis, it is related, made a vow that if he proved victorious in a pending battle with the Allemans, he would embrace Christianity; and his arms having been triumphant in this battle, which was fought near Cologne, A. D. 496, he adopted the lily, and it has been the national emblem ever since.—*Exchange*.

FERNS IN THEIR HOMES AND OURS.—John Robinson, Salem, Mass. New candidates for public favor, in the shape of literary products, are often sent freely for editorial opinion; at other times they come through the editorial exchequer, and the notices appear as matter of news, for a "live" paper must keep its readers

informed of all that is passing in the world around. We make this explanation in order to account for this very late notice of this useful little work. It is not exactly as "news" to our readers, for we noticed the prospectus early last season. The work itself will be found fully up to the promise. Part is devoted to the "Life of the Fern," a chapter is given to classification, the distribution and nomenclature of Ferns, in which a colored plate of *Pellaea densa* is used in illustration. Something of the literature of ferns gives an account of all the leading works on them. In the chapter "How to collect Ferns" there is an illustration of the new Fern *Cheilanthes Cooperæ*, and there are many successive chapters on the various practical matters relating to fern culture. The work will do much to stimulate the commendable taste for fern study, which already exists to a great extent among tasteful people.

THE SILK WORM, AND INSTRUCTIONS FOR PRODUCING SILK.—By C. V. Riley. Published by the Department of Agriculture. This department has done itself much honor in the publication of this admirable treatise; certainly one of the most useful ever issued by the department. It is we believe, furnished free to applicants.

RHYMES OF SCIENCE.—New York Industrial Publication Co. We are told that "a little nonsense now and then is relished by the wisest men." Those who would like a laugh at the expense of the learned, may buy this little book. The "Society upon the Stanislaw," will bear laughing over again, as many have laughed over it already.

ANIMAL MAGNETISM.—By J. P. F. Deleuze, translated by Thomas C. Hartshorn, New York, S. R. Wells & Co., from J. B. Lippincott, Philadelphia.

WESTERN NEW YORK HORTICULTURAL SOCIETY.—Proceedings of the twenty-fourth annual meeting at Rochester, January, 1879, from P. C. Reynolds, Rochester, Secretary. We have rarely received a report of this useful society so full of important practical matters. The reports on new or rare fruits and plants will be particularly interesting to horticulturists. Almost all the novelties before the public have been looked after, and their merits or demerits noted.

PROCEEDING OF THE GEORGIA STATE HORTICULTURAL SOCIETY.—J. S. Newman, Atlanta, Secretary. Those who wish to be informed in

Southern fruit culture, will find these proceedings almost indispensable. In a discussion on the Le Comte Pear, about which there was recent inquiry, we note that it is a descendent of the Chinese Sand Pear; that it ripens about the same time with the Bartlett, that all the members regarded it as a "good market Pear" and some as "among the best of pears;" and that it was subject like all other pears to disease, some even supposing the "black leaves" fire blight.

FARM IMPLEMENTS AND FARM MACHINES.—By J. J. Thomas new edition New York, Orange Judd Company.—This well known and standard work, is in general use by all intelligent cultivators of the soil. No better evidence of its utility can be adduced than the demand which has resulted in this beautiful new edition.

CHARACEÆ AMERICANÆ.—Illustrated and described by Dr. Timothy Allen, 10 East thirty-sixth street New York. This is a strictly scientific work; but in these days when a first class microscope is regarded as an essential piece of household furniture in well regulated families as a piano, it is not clear that a strictly scientific work which ministers to this taste, may not be regarded as of a popular character also. The Characeæ of all aquatic plants are extremely interesting subjects for microscopic work, as the movements of the fluids can be distinctly seen.

THE CATALPA.—By E. E. Barney, Dayton, Ohio. Some matters about the Catalpa have appeared in our pages. Mr. Barney has collected a great deal more than we have had room to tell, and he sends his pamphlet postage free to all for six cents.

CATALOGUE OF THE DAVENPORT HERBARIUM OF NORTH AMERICAN FERNS.—Published by Geo. E. Davenport, Medford, Massachusetts. This collection of Ferns is in the possession of the Massachusetts Horticultural Society, and comprises 142 species—all known native to the United States. Besides being useful as a list, it is a good guide to geographical distribution, as the locality from which each of the specimens were taken, is given.

SCRAPS AND QUERIES.

WILLIAM AND JOHN BARTRAM.—Querist. John Bartram is generally the one referred to as the "distinguished botanist." William, the

son of John, was a good botanist, but his chief love was ornithology.

A BOOK FOR EXOTIC PLANTS.—J. W., Houston, Texas, writes: "Would you please, in the next issue of the GARDENER'S MONTHLY, advise me as to what book I could get that has de-

scriptions of all or most of the plants in cultivation in garden, greenhouse and stove. I mean scientific descriptions. I have Gray, Wood, and Chapman's Botanies, but am at a loss on cultivated plants." Lindley & Moore's "Treasury of Botany" comes the nearest we know to what you require.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

NORTHERN TEXAS HORTICULTURAL SOCIETY.—The adjourned meeting of the fruit growers took place at Sherman recently. The meeting was held in the court house, and the chairman pro tem., Jesse W. Bell, called the meeting to order at 2 P. M. The attendance was not large, but there was a fair representation of the fruit interests of the county, and Mr. E. H. Adams, of Bonham, was present to speak for Fannin county.

After the reading of the minutes of the former meeting by the secretary, Mr. T. V. Munson, and a communication from C. C. Bell, of Denton, Elder C. S. Burns offered a resolution that those who were willing to become members of a Pomological Society, such as it was proposed to organize, give in their names to the secretary. Sixteen men put down their names for membership. On motion of Elder Burns, the meeting then proceeded to elect permanent officers, resulting as follows: President, H. C. Chittenden; vice-president, Jesse W. Bell; secretary, T. V. Munson; treasurer, W. Robinson.

On motion of Mr. G. Alkire, the fee of membership was fixed at fifty cents.

On motion of Mr. Adams of Bonham, it was resolved that the name of the society be The North Texas Pomological Society.

A motion by Mr. Munson that the Friday preceding the last Saturday in March, be the time for holding the next meeting, and Denison the place, was unanimously adopted.

HORTICULTURE IN CINCINNATI.—At the great exposition to be held in Cincinnati this Autumn,

Horticulture has not been forgotten. The premiums are extremely liberal, many being one hundred dollars, and some three hundred dollars. We note however, that the miserable system of comparative competition instead of intrinsic merits is still the rule for judges, under which system nine-tenths of the premium money is usually as good as thrown away. It seems to us in a horse race the one which made "the best time on record," would be more meritorious than the one which "came in before Smith's old gray mare." As the managers of fairs seem to know more about horse trots than anything else, we have thought this "horsey" illustration might perhaps carry our idea to their understandings better than anything else.

AMERICAN POMOLOGICAL SOCIETY.—The President Marshall P. Wilder, met with a serious accident, fracturing his leg by a fall down the State House Steps some weeks ago, while endeavoring to influence some legislation favorable to agriculture. We hear later that Mr. Wilder is quite comfortable, though our venerable friend is in his eighty-first year. It is at last certainly decided that the meeting of this Association will be held at Rochester, N. Y., by invitation of the Western New York Horticultural Society, on the 17th of September next.

PREMIUMS FOR FRUIT.—Among the peculiarities of the schedule of the New York Horticultural Society, is the offers for numerous varieties of fruit. Now the offer is for the best ten Baldwin apples, and so on for an immense number of kinds. It is not unusual for premiums to be offered for single kinds; but it is for such large numbers. This exhibition is to be held "about the middle" of September.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There is nothing in the whole range of American gardening that is the subject of so much solicitude as the proper care of the lawn. We envy the English, and are very apt to believe that if we sow good "English mixed lawn grass" it is all that is needed to have a good lawn in our country. But the secret is not the grass in the ground so much as the moisture in the air and the temperature of the atmosphere, and it requires greater skill to have good lawns here under disadvantages than there where all the circumstances favor. Of late years American lawn making has very much improved; and it is not unusual to find specimens which will bear favorable comparison with any in the Old World. In the first place we pay attention to deepening the soil before sowing the seed. Then we eschew "vernal grass," "crested dog-tail" and "white clover," the leading elements of English lawn grass, and use pure green grass, blue grass, bent grass, or rye grass, as the case may be, without mixture of any kind, and if any coarse weeds appear during the first year, cut them out, and fill any hole the digging out may leave with earth. Rolled down, the smooth earth will soon be clothed from the creeping roots of the contiguous grass. The next thing is to mow; and here, as we have often noted of late years, great

watchfulness is desirable. The great enemy of the American lawn is low creeping plants of the character of Veronicas and white clover. So long as the grass can be kept strong it will take care of these creeping things. Growing higher than they, it deprives them of light, and they do not get much chance to grow strongly; but if we cut the grass down very close to the ground the creeping weeds get all the light they need, and the upright grass blades are at a disadvantage. The lawn should be therefore carefully watched, and when there is any appearance of these creeping weeds getting power, the grass should be left longer at each cutting; then the troublesome interlopers are crowded out. As for manuring it is positively awful to see beautiful lawns covered with disgusting stable manure all the Winter long. A thin sowing of salt, or a light scattering of pure guano, chicken manure, or similar material, early in the Spring is all that a lawn needs. We have learned that several persons have offered premiums of one hundred dollars or more, for ought we know, for the best essays on the management of lawns. If authors were to spin out the subject with a book as large as the "revised statutes" of the States of New York and Pennsylvania, they could not tell more than we have told in these few lines, and in justice they should send the cash to the publisher of this magazine.

COMMUNICATIONS.

SPRING FLOWER GARDENING.

BY JAMES MAC PHERSON.

Among the opportunities which the climate of this country presents, and especially those portions of it which lie south of Philadelphia, there are few greater than those which "Spring gardening" presents; and yet how rarely if ever it is attempted. It may be urged that the effect is not lasting, but this objection may also be urged against Summer bedding in another degree. I have said that the country south of the Delaware is the most suitable. I may be wrong, yet it has seemed to me that the Spring is longer in these parts; at all events such flowers as are useful would be over by the tenth of May, thus leaving ample time to prepare the beds for their Summer occupants.

As a small contribution I append a list of such trees, shrubs and herbaceous plants as are now (May 1st) in flower, and feel satisfied that the latter are very poorly represented. Among trees, Rosales cut the most important figure, the most showy being among the genus *Prunus* and *Pyrus*.

<i>Acer laciniatum</i> , etc.	<i>Pulmonaria cœrulea</i> .
<i>Alyssum saxatile</i> .	<i>Phlox divaricata</i> .
<i>Anemone ranunculifolia</i> .	" <i>perfoliata verna</i> .
" <i>Hepatica</i> .	" <i>subulata</i> .
<i>Arabis alpina</i> .	" <i>s. alba</i> .
<i>Aquilegia Canadensis</i> .	" <i>s. oculata</i> .
" <i>cœrulea</i> , &c.	<i>Prunus domestica</i> fl. pl. nana.
<i>Adonis vernalis</i> .	" <i>Persica fl. pl. sanguinea</i> .
<i>Amelanchier canadensis</i> .	" " <i>rosea</i> .
<i>Berberis aquifolia</i> .	" " <i>alba</i> , &c.
" <i>fascicularis</i> .	" <i>cerassus fl. pl. rosea</i> .
" <i>repens</i> .	" " <i>rosea</i> .
<i>Betula pumila</i> .	" " <i>alba</i> .
<i>Bellis perennis</i> .	" <i>japonicus</i> .
<i>Cercis japonicus</i> , &c.	" <i>albus</i> .
<i>Cornus florida</i> .	<i>Pyrus floribundus</i> , &c.
<i>Crataegus tanacetifolia</i> .	" <i>japonicus</i> vars.
<i>Dicentra Canadensis</i> .	<i>Populus tremuloides pendula</i> .
" <i>spectabilis</i> .	<i>Rhododendron (azalea) amœna</i> .
<i>Dodecatheon Meadia</i> .	<i>Ribes aurea</i> .
<i>Exochorda grandiflora</i> .	<i>Spiraea Reevesii</i> .
<i>Forsythia Fortunei</i> .	<i>Salix laurina</i> .
" <i>suspensa</i> .	<i>Syringa</i> sps. and vars.
" <i>viridissima</i> .	<i>Staphylea pinnata</i> .
<i>Helleborus viridis</i> .	" <i>trifolia</i> .
<i>Hyacinthus</i> vars.	<i>Saxifraga cordifolia</i> .
<i>Iberis sempervirens</i> .	" <i>crassifolia</i> .
<i>Iris florentina</i> .	<i>Sedum acre</i> .
" <i>nanus</i> vars.	<i>Tulipa</i> vars.
<i>Kerria japonica</i> .	<i>Viola pedata</i> .
<i>Magnolia conspicua</i> .	" <i>striata</i> .
" <i>purpurea</i> , } vars.	" <i>tricolor</i> , &c.
<i>Myosotis dissitiflora</i> .	<i>Vinca minor</i> vars.
<i>Narcissus</i> sps. and vars.	<i>Viburnum</i> sps.
<i>Ornithogalum umbellatum</i> .	<i>Wistaria sinensis</i> vars.

VARIETIES AMONG RED MAPLES.

BY E. P. P., CLINTON, N. Y.

I have in planting some 2,000 *Arbor vitæ* from swamp land, found cropping out of my hedges a large number of swamp or low land maples. No two are exactly alike; some of them with elegant lacinated leaves, others with coral or scarlet bark, others golden barked. I have spared them, and think them quite equal to the Japanese maples. Some one ought to study them up.

ANNUAL AND BIENNIAL FLOWERS.

BY WALTER ELDER, PHILADELPHIA.

The fashion of having fine colored leaved plants in masses, helps very much to adorn our flower gardens; but the pleasure which pretty and fragrant flowers bring is wanting, and it is gratifying to every lover of true gardening enjoyment, that the good old annual and biennial plants are again becoming popular; fortified as they are by numerous beautiful species which



have been added to the list, since the rage for mere carpet beds threw them into the far back ground. Of older new things, however, there are few that will compete in fragrance with Sweet Alyssum or Mignonette. Some complain that they are dead before the Summer season is over; but if the flowers be cut off when or before they fade, the blooming season is much prolonged; and this is true of perennial plants as well, to a great degree. The old fashioned Rockets and Larkspurs have been much improved of late years. The accompanying drawing is of a kind of Larkspur sent out by Messrs. Vilmorin of Paris, as the "camellia flowered" Larkspur.

Among perennials, some of the kinds of *Columbines* have been wonderfully improved by

NOTES ON SOME GARDEN TREES AND SHRUBS.

BY ISAAC HICKS, OLD WESTBURY, N. Y.

hybridization since the Utah yellow and Rocky Mountain blue have been introduced. Some of the new varieties are continuous bloomers, almost lasting till Autumn. The old Chinese Pink has also been improved so as to produce a race of continuous bloomers, some of which are small and with round petals, and some as in the cut

Scotch pines are fast failing here; the trunk is bored severely, and often large trees turn yellow and die without any sign of disease. As they so seldom make handsome trees when large,



DIANTHUS CHINENSIS LACINATUS.

with very finely divided edges, and seeming to have the same relation to each other as the old time races of Carnations and Piccotees. Even the common Snap-dragon has been greatly improved, and those who only knew it of old, would scarcely recognize the newer ones as belonging to the family.

had we not better discontinue planting them? The *Hydrangea p. grandiflora* is so much more showy and profuse bearer of large trusses, that we wish no other. The *H. paniculata* is the strongest grower, but the flowers are comparatively insignificant.

There seems to be in some catalogues much

confusion about Poplars. One calls the cottonwood "monilifera," another "angulata." We have had the black Italian Poplar, and the white Italian, the Carolina Poplar, and the angustifolia, and the varieties are rather mixed up.

[The kind under culture known as angulata has a rough bark at four years old. The one called monilifera has a smooth bark far on towards old age.—ED.]

We have a plant *Desmodium pendula* that blooms in September, which is very pretty, and bears a profusion of blooms when flowers are rare, and consider it worthy of attention.

Magnolia trees of the Chinese varieties live much better, we find, if they are worked on the *M. tripetala*, affording so many more fine roots, which the *acuminata*, unless often transplanted, are very deficient in.

RHODODENDRON CULTURE.

BY ALEXANDER MESTON, ANDOVER, MASS.

Around this neighborhood where shrub or tree planting is to be done, beds have to be made expressly to insure success. We have here three beds of *Rhododendrons*, and prepared a fourth last Fall for planting soon; the beds now planted are a great success, having been well prepared at first.

In making the beds we take off the surface sod and any good soil, laying it aside, then take out the gravel three feet deep; we then throw the surface sod and soil in the bottom, turning the green side down.

The compost used is bog or swamp peat, not dead sour stuff three or four feet deep, but the fibery sod of the surface, a spade depth, where ferns and native *Azaleas* grow. This is brought home and chopped up fine, throwing aside all dead wood or large roots; when all is gone over once we then add a good load of well rotted leaf mould to six loads of peat, and a load of sharp river sand is added, and the whole is turned three or four times to insure thorough mixing, likewise helping to pulverize the whole. We proceed next to fill the bed, beginning at one side, keeping the roughest towards the bottom and treading all down firmly as we go along, leaving the bed rather higher than the surface of the ground, as it will settle a little; the bed is then ready for planting.

As regards varieties, all the *Catawbiense* varieties are hardy, and can be had from almost pure white to dark purple. In making a selection it is best to pay a visit to some nursery when they

are in full bloom and choose for yourself. Young stocky plants are preferable to old woody ones; give plenty of room when planting as they soon fill up.

As the soil will be exposed to the sun for some time before they are able to shade it; give a mulching with some litter to prevent drying at the roots. Should a continuance of dry weather set in, the leaves droop, their edges roll backwards, then water is wanted and must be given to insure success the following season. In answer to a correspondent in the February number as whether to plant in the shade or full sun? I say plant in full exposure to the sun, and they will stand the Winter far better; the time to shade is from November to March, or from the time severe weather sets in until it is past; this is necessary in Massachusetts, and pine boughs I find answer the purpose well.

EDITORIAL NOTES.

THE TULIP TREE.—Mr. C. M. Hovey tells the *Gardeners' Chronicle* that the Tulip tree "in America is not a very common tree in cultivated gardens; as Americans are proverbially in a hurry to get up shade trees, as they do a house, they neglect the Tulip tree and the Magnolia, and take the Elm, the Horse-chestnut, the Maple, and other trees."

It so happens that the Tulip tree is a much more rapid grower than the Horse-chestnut or many maples; the common Silver maple alone possibly exceeding the Tulip tree. The proverbial haste of Americans can therefore have little to do with the imaginary scarcity; for after all the scarcity is but imaginary. The writer of this once asked a prominent Boston amateur why American trees were scarce on his grounds, and was answered that the nurseries of that city imported most of their young nursery stock from England, and of European species, and hence he could not find American kinds to plant. We fancy Mr. Hovey must be speaking of his own city experience, when he continually represents to Europeans that Americans neglect their own beautiful trees. If it is true of Boston we know it is not true of other large American cities. We will say at least for the nurseries radiating from New York, Philadelphia, and Boston, that leaving out the Norway maple, Horse-chestnut, and Norway spruce, nine-tenths of the trees sold are American species. Of the Tulip

tree one reliable nursery firm assures us that their sales of it during the past twenty years, for ornamental purposes alone, cannot have been less than thirty thousand trees. We are coming to the conclusion that Mr. Hovey's experience of American nurseries and of American taste for trees must be very limited, and we are not willing that his opinions in English papers should stand for "American" opinions. They are Mr. Hovey's and nothing more.

HARDINESS OF ROCKY MOUNTAIN EVERGREENS.—It was a good winter to test the point made by Professor Sargent, that *Abies Menziesii* of Colorado is much better adapted to endure Eastern Winters than *Abies Menziesii* of the Pacific coast. We examined recently some specimens in Germantown that had been through the Winter side by side, and found all of the Pacific plants with their leaves off, while the Colorado specimens had not a leaf injured. The Colorado form is known in nurseries as *Abies Menziesii* Parryana. It is besides much more beautiful in its habit; though from its slower and more compact growth, less adapted to timber culture. Europeans, who are planting our trees exclusively, will find the Pacific forms best suited to their purposes.

HARDINESS OF THE FIRS.—It is among the peculiarities of the season, that the Firs as distinct from the Spruces, were comparatively uninjured by the severe Winter in Germantown. Pinsapo, Appolonica, Pindrow, and others often thought tender, were wholly unhurt.

CARBOLIC ACID AND WEEDS.—As a weed destroyer, carbolic acid seems likely to prove a boon to gardeners. Such weeds as dandelions are killed by one application, the mode of applying it to destroy single plants being to make a hole in the crown with an iron point, and then to pour in a little of the liquid from a bottle. For paved yards, and also for garden paths, the carbolic acid is mixed with from ten to fifty times its quantity of water in a bucket, according to its original strength, and applied with a brush or broom, or from a rose watering can; a sunny day being the best.—*Florist and Pomologist*.

THE VIRGINIAN CREEPER IN EUROPE.—It is interesting to see the striking use frequently made of this common creeper abroad, in letting it fall in immense sheets over walls, banks, bridges, and the like. On each side of the

Palace of Schönbrunn there is a private garden which is completely enclosed on the three outer sides by a high and roomy covered way of iron trellis-work. The whole of this in both gardens is completely sheeted with the Virginian Creeper—immense walls of rich and glowing colors. It was, indeed, the only thing in the great French garden there, or of what was seen from it, that deserved any praise.—*Garden*.

CARPET BEDDING WITH HARDY PLANTS.—A carpet bed near the entrance to Messrs. Veitch's Coombe Wood Nursery is well worth notice, showing, as it does, what excellent effects may be obtained by the use of dwarf-growing hardy shrubs in what is called pattern gardening. The plants employed in this case are silver and golden-leaved *Retinosporas*, *Euonymus albo-variegatus*, and *Mahonias*, the whole being edged with a band of *Erica herbacea carnea*. Such beds give little or no trouble when once planted; they are equally beautiful in Winter and in Summer, and, although it might not be advisable to carry this style of gardening to an unlimited extent, yet a few such beds introduced into flower gardens where a series of pattern beds exist, would go far to relieve the monotonous blaze of color usually found in such places, and thereby greatly enhance the general effect.—*S. in Garden*.

NEW OR RARE PLANTS.

GYNERIUM JUBATUM.—This is a magnificent grass, with a flowing, mane-like inflorescence. The lateral branches of the plume are remarkable for their length and their graceful curvature, and the secondary branchlets are numerous, long and slender, the whole forming a dense, massive plume, not less than three feet in length. I have only seen a female inflorescence, which is of a silvery hue slightly tinged with pink at the base of the separate florets. Perhaps it may be worth while stating that the sexes are borne on separate plants in all the species of *Gynerium* and that the plumes of the male flowers are neither so handsome nor so durable as the plumes of female flowers. Whether this is a distinct species the material before me is insufficient to determine, but its distinctness and superiority as a variety are beyond question.—*W. B. Hemsley, in Garden*.

SALVIA FARINOSA.—This beautiful blue hardy herbaceous plant, which, under the name of *Salvia Pitcheri* has been occasionally seen in American gardens during the past ten or fifteen years, is being "brought out" by European growers, and will no doubt now become as popular as it deserves. The English and French magazines say it is a native of Mexico, but it is also of the United States, extending to Southern Kansas.

SCRAPS AND QUERIES.

PRUNING EVERGREEN HEDGES.—B., Cincinnati, writes: "A few years ago my evergreen hedge was very beautiful. The top was so level as if it were a planed board, and the sides so upright that a plumb line would hardly touch a leaf. Now there are few branches alive at the bottom; and all the foliage is at the top. Is there any remedy?"

[We fear not. Our friend can scarcely be an original reader of our magazine, as we have continually shown that to keep a hedge with perfect leaves at the base, these base leaves must have light, which they cannot have perfectly when the sides are upright. No hedge can be kept in perfect condition from bottom to top, unless the sides are trimmed slopingly from base to apex, like A. When we started the *GARDENERS' MONTHLY* twenty years ago, these square up hedges were common, and we have

taken some credit to ourselves for correcting this error. There are none now about Philadelphia, and there ought not to be anywhere. —ED. G. M.]

PINUS PUNGENS AND PINUS BANKSIANA.—A St. Louis correspondent says: "The *P. pungens* pleases me much, its bright green and moderate growth are admirable. *Pinus Banksiana* is also a favorite with us; but the nurseries seem to have discarded it."

ACER MACROPHYLLUM.—A correspondent writing from St. Louis says: "The Oregon maple has passed the Winter admirably at St. Louis where the thermometer was 8° below zero." This is also Philadelphia experience. It was a very good Winter for deciduous trees.

MAKING A NEW LEADER TO EVERGREENS.—B., Cincinnati, O. A new leader can be forced from any coniferous tree by cutting in the side branches. Every fasciculus or bunch of pine needles, and indeed every single leaf on a spruce or fir, has a dormant, though generally invisible bud in the axil, and these can be forced into growth by preventing side growth, and are so forced by skilful gardeners.

MAGNOLIA SOULANGEANA.—Under cultivation all we ever saw of *Magnolia Norbertiana*, *M. Alexandrina*, and *M. Soulangeana* were exactly alike. Can any one tell whether there are distinct kinds under these names; and if so how are they distinguished?

GREEN HOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

THE BON SILENE ROSE.

BY S. MEMPHIS, TENN.

In the *Gardener's Chronicle* of January 11th, page 55, R. B., of Philadelphia, speaks in glowing terms of the Rose Bon Silene. Now, Mr. Editor, the Bon Silene is an old rose, known to me and has been in my possession for thirty

years here in Memphis. It nearly went out of existence, until certain quacks in New York resurrected the old favorite rose Golconda and called it Bon Silene. Both these roses are very fine, and Golconda is the true name of the rose now scattered as Bon Silene; and the true B. S. I have not found outside of what I have. It is *Devoniensis* in shape and appearance of flower, color dark cherry red, very distinct and striking.

In fact I know of no rose, take it all in all, so strikingly grand as the true Bon Silene; that with the true Leveson Gower I have kept for my own pleasure, and not in thirty years have I sold a plant of either.

[With this S. sent some specimens of each, which bear out what he says of the difference between the two.—ED. G. M.]

ODONTOGLOSSUM ROSSII and CATTLEYA CITRINA.

BY

In the list of Orchids (April number, page 107), you do not include by name the above pretty species of *Odontoglossum* as suitable for parlor culture, though you refer in a general way to the value of most of the group for that purpose. This diminutive plant, whether on a block or in a pot, is a perfect gem, remaining a long while in bloom, and not suffering from that enemy of all house plants, coal gas.

A very small potted plant of the above remained in bloom in a moderately heated room for five weeks from March 1st, and it would be difficult to imagine a more satisfactory specimen for room cultivation. A plant somewhat larger upon a block was in flower in a neighboring greenhouse nine weeks and bore fourteen blooms, though but nine months had elapsed since it was at home in the forests of Mexico, and of course was but very imperfectly established upon its new home.

Small fine specimens of *Cattleya citrina* received at the same time, are also in bloom, and lovely beyond description with their pendent, lemon-colored flowers, with delightful citron fragrance. Not as permanent as the former for room culture, they last long in the cool greenhouse; a charming specimen continuing in perfection for seven weeks, which is said to be very unusual. This is from actual personal experience, and shows what can be done with many members of this lovely family.

BOILERS.

BY J. HARRY TAYLOR, NICETOWN LANE, PHILADELPHIA.

In the February number of the *MONTHLY* appears as sensible an article upon the heating of greenhouses as I have seen for some time. F. W. Poppey, the writer of the article, evidently has given the subject much thought. Last Summer I started as an amateur, and the

first tough point to settle was the boiler. After looking into the merits of all the patent boilers I could hear of, my decision was to cut loose from all of them and put in an ordinary locomotive boiler of from ten to twelve horse power, and I venture to say the same amount of glass is nowhere else heated with the same amount of fuel unless this style of boiler is used. I am heating nearly 6000 feet of glass, and carry a temperature of from 40° to 80° in four houses. Judging from the amount of fuel on hand, the cost to date for coke and coal will not exceed \$60. The cost of the boiler with alterations ready to connect to 4-inch pipes, was \$175, delivered and put in the pit. They may be bought as low as \$50, but the above is a fair price for one of 12-horse power as good as new.

The advantages of this boiler over all others for making steam are too well known to make it necessary to describe them here. If it gives steam quicker than any other boiler, of course it heats water faster. It requires no building in. To get all the heat possible the boiler should extend into the greenhouse (in the pit), and then wall up flush with the face and feed from the outside. The brick flue extends the length of the house, giving it as much rise as possible. On account of so much heat being taken up by the water, it requires rather more rise than if water was not used. That portion of the pit extending into the greenhouse should be large enough to admit of a person getting all around and under the boiler to make repairs, clean out, etc. I am well aware that a wrought iron boiler will not stand the neglect that a cast iron one will. But with care the life of a steam boiler is about fifteen years; and if these boilers are treated the same as the boilers on our Monitors are, when not in use, they will last longer.

ABOUT ROSES.

BY A. C. LANIER, MADISON, IND.

I send you a copy of a letter which explains itself. The author has charge of one of those beautiful estates near Poughkeepsie, N. Y. He is the most successful cultivator of the rose that I ever met with. His plants are one mass of bloom from November until late Spring. He tells a plain, unvarnished tale:

"You ask me how I manage my roses to have them bloom in early Spring. I prefer two year old plants, but use good strong one year old ones, if compelled to do so. I plant my roses

out in the garden in the Spring and do not allow them to bloom during the Summer. About the last week of August or the first of September I take them up with all the soil that will hang to them, pot them and place them in a very shady place for about two weeks, out of doors, watering and sprinkling all the time, I now expose them to the sun, until the foliage falls off. All of this time they will be making new roots and the tops be at rest. When the leaves have fallen, prune them. Cut back the young growth a little and then cut out the center. Place them in the greenhouse about the 1st of October. If you use a flue in your house I would place the plants in the middle of the house, but if they are on benches over the pipes, put two inches or more of sand or tan under the pots. Do not attempt to force them too much, but give all the air possible in the day time. Great care should be taken not to sour the soil; syringe often. Soil is very important. If it be possible get a lot of sods from an old cow pasture, three or four inches thick, put them in a heap and add to them as one to four of cow and horse manure, turn this compost over three or four times during the Summer, breaking up the sod each time. I never screen my soil for roses, nor do I use drainage in the bottom of my pots, but simply the old fibrous roots that I find in the soil at the time of potting. Turn out all of your roses early in the Spring as possible, prune off the long roots and follow directions as above given, and I will insure you abundance of flowers from November until March. I prefer to have my roses too dry rather than too wet.

VELTHEIMIA VIRIDIFLORA.

BY W. C. L. DREW, EL DORADO, CAL.

This is one of the rare flowers, seldom successfully treated by amateurs; with me it blossomed finely this Spring. As it may be of interest I will give my method of treatment.

It will hardly be necessary to state that the Veltheimia is a bulbous plant; I procured my bulbs in the Fall of 1876, planted them in October, in pots of good, rich, moderately light loam, without drainage, planting them so the neck of the bulb extended one half inch above the surface of the soil. The pots were then placed in a cool, shady situation, where they remained until the first of December, when they were placed so as to receive all the sunlight and heat possible; by this time the foliage had commen-

ced to grow, and made a most luxuriant growth by May, but no sign of flowering. In June the foliage commencing to ripen, I dried it off. After the middle of June it received no water, the bulb remaining undisturbed in the pot. In October, noticing signs of life, I shook out most of the soil, replacing it with fresh soil of like nature; water was given moderately and by the first of January 1878, it had made a fine start. From this time on it was given all the sunlight and heat possible, but no artificial heat. About the first of February buds appeared, they made a slow growth, coming into bloom in May. The flowers lasted three weeks, and then being half withered were removed so as not to exhaust the bulb.

The foliage is magnificent, broadly lanceolate in shape, about nine inches long by two and a half inches wide, in color a rich emerald green, shining as though freshly varnished; the margins are undulated, radical leaves without petioles. The flower stem grows from ten to eighteen inches high, about two-thirds of an inch in diameter, color light green, heavily marked dark purple. The blossoms are borne in an umbel at the extremity of the stem; they are drooping, tubular in shape, about two inches long. The umbel is composed of from twelve to fifty florets; there were forty-three in the specimen I flowered. In color they are a peculiar salmon pink, hard to describe, the tips of the florets being a light green.

At a light glance they are frequently taken for a new variety of the Tritoma. There are no bulbs of the Veltheimia for sale in the United States that I am aware of, and only two or three firms offer them for sale in Europe. I noticed a new variety known as *V. glauca*, offered by one firm in Prussia last Fall. The bulbs are worth from \$1.50 to \$3.00 each, according to size. Bulbs of *V. viridiflora* are worth \$1.50 to \$2.50 each according to size.

THE PHILODENDRON.

BY E. P. P.

One of the most easily grown climbers is the Philodendron. It is adapted to a cool conservatory or a bay window, as well as to a warm greenhouse. Its large split leaves are a novelty in vegetation sure to draw attention. It is most easily led about the top of the room and its heavy coils sustained from hooks in the ceiling. I have seen it but once in fruit, and that at

Shaw's garden, in St. Louis. The fruit is said to be excellent. The pot should be set high up from the floor, as it is best indeed with most of the climbers. Mine is forty to fifty feet long, and hides the ceiling of my conservatory. Twining in with it is a huge Hoya which gives me something over one hundred clusters of bloom in the Spring, and half that in the Summer.

A LARGE HELIOTROPE.

BY MR. THOS. LAWRENCE, OGDENSBURG, N. Y.

I have noticed that you invite descriptions of large or interesting plants, and therefore send you a description of a large and productive Heliotrope; I have had it nineteen years. It is trained espalier-fashion under three sashes of my greenhouse within six inches of the glass, and covers a space of ten feet high and fourteen feet wide. It attained these dimensions the second year. I have frequently taken off at one cutting 300 trusses of flowers. There are seldom less than 100. It is of the old "Souvenir de Liege" variety, and is light lavender in color, but by keeping one sash whitewashed it gives me all I want of blooms nearly white. It is planted in a bench three feet wide, ten feet long, and eight inches deep. The bench is covered with pots of other plants all Winter, that will do in the shade so that the under space is occupied. I dry it off from June till August. Prune it back to five old canes one inch in diameter and five feet long. Take out all the earth and cut off all the roots to within a foot of the trunk (which is five and a half inches through it.) Fill with new compost and start again, allowing no shoots to grow for two feet from the root. It might be grown to double the dimensions, but I have not the space to spare or sale for the flowers. I have two other varieties under similar treatment, but shall discard them as they are not nearly so productive.

EDITORIAL NOTES.

CINERARIAS FROM SEED.—As the culture of the Cineraria has reached such eminence in England, the following note on raising them from the London *Gardeners' Chronicle*, will be acceptable to our readers:

"The most popular method of propagating the Cineraria is from seeds. Sow in May or June in light soil; when the small plants are

large enough to handle, prick them out about six or nine in a four-inch pot, and when these have grown so that the leaves touch each other, re-pot them simply in small pots, and treat them as previously directed for named sorts. Seedlings generally grow more strongly than named varieties. They are less difficult to propagate, and for general decorative purposes they answer equally well. Seeds from a good strain should be obtained to start with. The insect pests are principally greenfly and thrips, but red-spider will also attack the leaves. Fumigate with tobacco smoke to destroy the two first; the other will seldom appear if the best attention is given to the plants. Keep the plants close to the glass during the whole period of their growth. Avoid a dry atmosphere, and see that they do not suffer for want of water at the roots.

ORCHID IMPORTING.—Two of the largest consignments of orchids that have probably ever been made, have recently been received by Mr. William Bull, and it must be gratifying to orchid cultivators to know that their condition on arrival was very satisfactory. The number of plants in the two consignments, is estimated, fabulously as it may appear, at about 2,000,000. The greater number of them came from Assam, and certainly the plants now that they are unpacked, present a perfectly astounding sight. Some of the pieces sent as they were pulled from the trees, put the usual run of "bedded-out" specimens quite in the shade, so extraordinarily fine is their growth.—*Gardeners' Chronicle*.

ABUTILON DARWINI.—At a recent meeting of the Germantown Horticultural Society, Mr. James Barrows exhibited a plant of this pretty species which though only eighteen inches, had thirty-three expanded flowers. It was a fine example of good culture.

HISTORY OF THE CHINESE PRIMROSE.—The Chinese Primrose as it first appeared in our gardens in 1821, the date of its introduction from China, was a very different flower from that which we now commonly cultivate under that name. Much smaller in the size of its blossoms, much paler in its hue of rosy pink, it differs still more in having the five lobes of its corolla quite smooth and even at the margin, with a terminal notch only. Such flowers are rarely seen and would not be tolerated now, though according to the florists' canon, that plain-edged flowers are to be preferred, the entire edges of these old fashioned forms ought to have been main-

tained. However, it was not so, perhaps because both appear to have been received at the same time from China; for in a report on new plants grown at Chiswick, and read to the Horticultural Society by Dr. Lindley in 1824, we find this account of its original introduction: "To this plant, one of the finest ornaments of the greenhouse, attention was first attracted by a drawing sent by John Reeves Esq., from China to the society, in consequence of which it was introduced three years ago by Captain Rawes, and presented by him to his relative, Thomas Carey Palmer, Esq., of Bromley, in Kent. It was for some time very scarce, but is now become more common from the liberal distribution which has been made by the society of plants obtained from seeds brought from China by Mr. Potts. It has never been seen in this country in the luxuriant state in which it is represented in the Chinese drawings, but two varieties have been noticed, one the state in which it produces fringed petals, and the other in which it produces plain petals." The latter seems to have been the more prevalent, and commonly cultivated form, but from the former no doubt the larger and high colored fringed ones was gradually evolved.

The fringed forms are noted in catalogues as having been introduced in 1833, but this in the face of Dr. Lindley's report is evidently an error, and it is probable that the rarity of the fringed type no less than its beauty—for we must admit the beauty of fringed Primulas, and frilled Azaleas, the florists' general law notwithstanding—led to its being more carefully cultivated, and to the selection of improved varieties. This is indicated in the records of the day, for in 1837, Mr. Knight is credited with having in his possession a fringed variety larger and brighter colored than the ordinary form; and a year or two later we read of double-flowered white and rose-colored varieties, these latter being of the plain edged type. So much for the first twenty years of its cultivation in our gardens.

In the next twenty years a slow but manifest improvement was going on in the single fringed sorts, the plain edged ones being generally discarded, and towards the close of this period, several new forms of double flowers were produced, most if not all of them being fringed flowered sorts, with large flowers of rich and varied colors, the original rose and white being varied to purple-crimson and rose-crimson in different tints, and varying shades of pink, flesh-color, and blush, while flaked flowers, white

with red stripes, were also produced. During this interval too, and towards its close, the fern-leaved variety originated as a seedling sport, we believe, at Finchley, and this after a time in its turn yielded both the rose and white flowered varieties.

The third period of twenty years since *Primula sinensis* (*P. prænitens* of some), was introduced has now nearly passed away, and during this latter space of time, the acquisition of double flowered sorts has been much more rapid, until now the list of names of varieties has become a lengthy one. This period has also witnessed the production of double-flowered forms of the fern-leaved section in various colors, and the numerous certificates awarded during the last few years show that, in the opinion of those best qualified to judge, improvement has been going on. It was quite at the commencement of this third period that M. Benary introduced the bright colored variety named *Carminata*, the bright salmony rose flowers of which were at that time quite a novelty. The introduction of this form has done much to brighten up the colors of many of the later novelties. This, however, is surpassed in richness of hue by a crimson form, for which it appears we are indebted to M. Vilmorin, and of which we shall hear further by-and-by.—*Gardeners' Chronicle*.

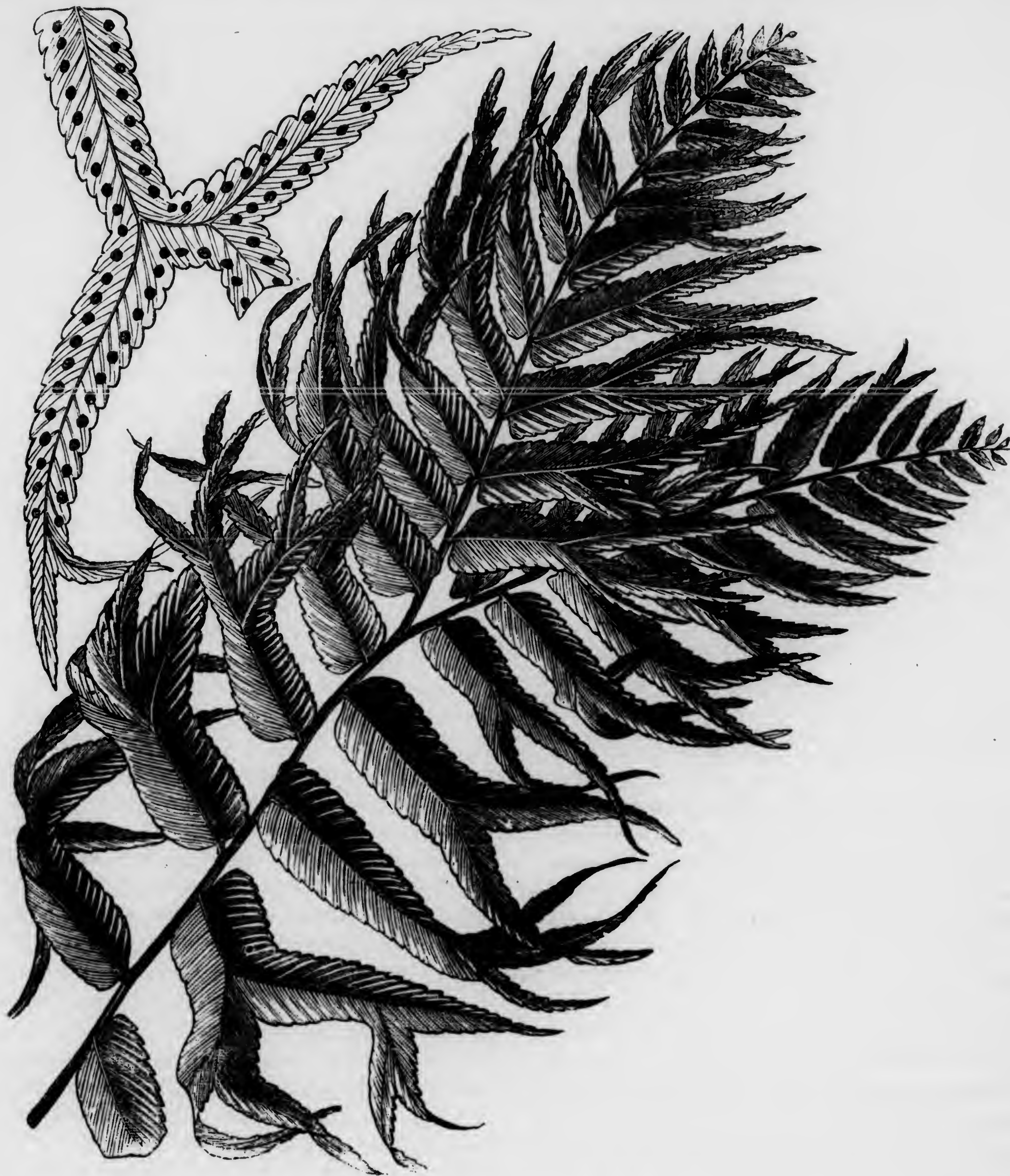
NEW OR RARE PLANTS.

NEPHROLEPIS DAVALLIOIDES FURCANS.—The taste for ferns, now so general, makes the introduction of any striking variety very acceptable to lovers of these graceful plants. The one we now illustrate belongs to a genus very well known, one species *Nephrolepis bulbifera*, being in very general cultivation. This pretty form was introduced by Messrs. James Veitch & Son, of Chelsea, England, who kindly furnish the following account of it:

"A beautiful and distinct crested variety of the Java fern *Nephrolepis davallioides*, received from our friends Messrs. J. Baptist & Sons, of Sydney, N. S. W. It is a noble fern, of robust growth, sending forth as from a central tuft numerous arching fronds from three to four feet long; and both in habit and general appearance is a great improvement on the normal form. From this it differs in several striking particulars; very obvious among these is the furcation of the pinnæ. In the sterile pinnæ, which are

few in number at the base of the frond, the furcation is rudimentary; the fertile pinnæ are furcated, and the furcation is twice, and even thrice, repeated in the extremities of the first division, becoming more complex towards the point of

Royal Botanic Society, June 10, 1874, and a first class certificate from the Royal Horticultural Society, September 17, 1873, and was exhibited at the International Exhibition at Cologne, August, 1875."



NEPHROLEPIS DAVALLIOIDES FURCANS.

the frond. The somewhat coarse serration of the pinnæ of the species is replaced in the variety by a crenate edge far more pleasing in outline. It received a certificate of merit from the

A YELLOW LOBELIA.—Mr. Edward Pynaert in *L'Horticulteur Belgique*, says of *Lobelia lutea*: "The introduction of this pretty little plant, will be hailed with pleasure by all amateur

florists. It is a sister to the charming blue *Lobelia erinoides*, but the flowers are golden yellow, or brilliant orange, and a little larger than its blue relative. It continues in flower from June till Autumn. It will be a precious plant for carpet bedding, as yellow flowers are scarce."

ROSE, QUEEN OF BEDDERS.—Mr. John Saul has introduced this famous English Rose. Writing to the *English Gardeners' Chronicle*, Mr. Charles Noble says of it:

"Queen of Bedders can be seen in unwonted beauty at this moment. A bed twenty-five by fifty feet has 22,500 buds and flowers upon it. It belongs to the Bourbon class, color a rich glowing crimson, very double, and blooms from early Summer up to frost."

ROSE, HYBRID PERPETUAL, E. Y. TEAS.—The *Garden* has a colored plate of this beautiful rose, with the following remarks by George Paul:

"E. Y. Teas is, perhaps, the finest shaped of any of the Hybrid Perpetuals, and no prettier sight can be seen in the rose nursery than rows of this beautiful kind in full bloom. Nearly every flower is perfect, and the difficulty is, when cutting for exhibition, to choose the most beautiful. Would it were rather more vigorous, says the rose grower; but, alas! how few things are perfect. It is very free flowering, and is richly scented. The raiser of it is M. Eugène Verdier, of Paris, to whom we are indebted for many good roses."

AZALEA, QUEEN OF INDIA.—Messrs. Aguste VanGeert & Co., Ghent, Belgium, have issued a beautiful colored lithograph of this new double Azalea, which really seems a great step in advance, though new Azeleas are very abundant. The flowers are represented as four inches across, crimson, rose, with mottled white on the edges. The interior petals are numerous as in Double Petunias, and of the same shades of color as in the five very broad outer petals.

BEGONIA PRISMATOCARPA.—This is an attractive little plant for a stove or intermediate house. The foliage is small, and the plant is very dwarf; the flowers are pale yellow, the perianth segments being faintly streaked with orange near the base. It succeeds in a pan three to four inches deep with a soil of peat, loam, and sand, and requires good drainage. It is a native of Fernando Po.—*Journal of Horticulture*.

NEW CAMELIAS.—The improved Cameliass still continue popular in England. Some seedlings by Mr. C. M. Hovey, of Cambridge, Mass., have been well received; and plants of them sold by auction have brought good prices.

SCRAPS AND QUERIES.

MESEMBRYANTHEMUM—C.E.P., asks: "Have any readers of the GARDENERS' MONTHLY succeeded in raising *Mesembryanthemum cordifolium variegatum* or *Cobœa scandens variegata* from seed?"

ABUTILONS.—C. E. P., inquires: "Will you please inform me through the GARDENERS' MONTHLY what is the difference between *Abutilon Mesopotamicum* and *A. vexillarium*? I always supposed that they were the same, but in the catalogue of the Greenbrook and Paterson Nurseries for 1879, I notice that they are described as different and distinct varieties. In what respect do they differ? And in what respect does *A. vexillarium* differ from *A. vexillarium brillatissimum*? Is it an improvement in name only?"

BEAUTIFUL ROSES.—With some remarkably beautiful roses which we suppose to be *Niphetos*, we have the following note from Mr. Daniel Barker, of Norfolk, Va: "I send you by this day's mail, sample of rose buds the same kind as grown in France for the Paris flower market, and which figure so conspicuously there. It has been said that they cannot be cultivated and brought to the perfection here as in 'La belle France.' Did you ever see them finer or more perfect in Paris, or in any other part of Europe? It will keep for three or four days longer in bud than any other rose we have."

CYCLAMENS IN ONE YEAR.—It is not generally known that good flowering plants can be had in one year. Mr. Daniel Barker sends some nice photographs on one of which there appears dozens of flowers, and which would not be thought mean even for a specimen plant for exhibition. With it comes the following explanation: "I enclose photographs of two *Cyclamen Persecum*, the seeds of which were sown July, 1877. The smaller one had upwards of seventy expanded flowers at one time; the larger one not so floriferous as the former, but much larger flower, equal to *Persicum grandiflorum*. I enclose

a flower of the larger one; by measurement you will find that we are not far behind our English friends in size of flowers."

RUST ON GLOXINIAS.—J. W. H. Ardmore, Pa., asks: "Can any one give a remedy for rust on *Gloxinias*?" It is one of the most serious enemies to the culture of this beautiful tribe of plants; and is much worse to contend with than the rust on *Verbenas*. It has compelled many to wholly give up growing them, and we are sorry to say that no remedy is known.

SEEDLING PETUNIAS.—G. T., St. Louis. "Enclosed you will find two seedlings we raised. If they keep good, tell me what you think of them through the GARDENERS' MONTHLY."

[Dry cotton is not good for packing flowers. They were dry as hay by the time they reached here.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Fruit trees are often thought to be injured by over-bearing, and so they are; but very often bearing trees break down sooner than they would do by having been permitted to bear "sprouts" from the main branches. These may be cut out every Autumn and Winter at the annual pruning; but for all it is an injury to let them grow at all. As far as practicable all useless shoots should be rubbed out as fast as they appear in the growing season. In like manner young grafts are often injured by allowing sprouts to remain on too long. All should be taken off as soon as practicable. If however the graft be on a very strong vigorous shoot, and the graft itself be not over-strong and vigorous, as is, for instance, very often the case on tall stems that have had a good head taken off before grafting, all the sprouts from the stem should not be taken off at once, but only a few of the lowermost ones, every few days, till in a week or so all may be taken off up to the graft. It was said by the gardeners of the olden time that pruning in Summer weakens, but pruning in Winter strengthens. Advanced gardening has discovered that pruning at any time weakens, and those who have the time and the disposition to look after fruit trees as they should be seen to, should so try to help the plant to grow as we want it, so as to save any pruning at all.

Fruit trees transplanted in the Spring, if they make only a very weak growth, may be cut back freely, as this is the only way to get a

thrifty growth. Though pruning weakens, transplanting also weakens, and pruning is the least evil of the two. Where good fruit is desired there is nothing better than early thinning. Of course the weaker the tree is from transplanting or from any cause the less it should be permitted to bear.

Where the fire blight attacks the pear tree, the best practice is to cut away at once and burn the diseased branches. The new growth which follows this seldom has the disease in the following years. We have known of orchards that have been very badly served by the fire blight, nothing indeed being left but bare stumps, which are now as perfect as any trees can be.

For the codling moth nothing has been found superior to placing hay bands or bands of some other sheltering material round the trunks of trees, and then destroying the eggs laid therein. It will not wholly destroy the trouble in districts where nobody does anything; as after destroying one's own pests he has to entertain his neighbors; but still it does some good even here.

Fine rich color is always esteemed as one of the criterions whereby to judge of the excellence of a fruit. Sun-light is of first importance; but it is not generally known that this is injurious when in excess. In a dry atmosphere, with great sun heat, where the evaporating process goes on faster than the secretive principle, what should become a rich rosy blush in a fruit, is changed to a sickly yellow; and the rich jet black of a grape becomes a foxy red. Some grape growers of eminence, in view of the facts, shade their vineries during the coloring process;

but others, instead, keep the atmosphere as close and moist as possible.

Peas for Fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting Fall peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for celery, and are then much more successful with them.

Cabbage and brocoli may still be set out for Fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are much in request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June some celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Beans produce an enormous crop in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Cucumbers for pickling may be sown this month, and endive for Fall salad set out. Parsley for Winter use may be sown now, in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellises recommended, will be found to do best on stakes

tied up singly. It is best to plant a strong pole as for lima beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede turnip or ruta бага should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates, bone dust, for instance, are superior for the turnip.

Sweet potatoes must be watched that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Parsley for Winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches and hang in a cool shed, or place them loosely between the paper and stow away in cupboards or drawers—the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

THE JAPAN PERSIMMON.

BY E. MANNING, NEAR HARRISBURG, FRANKLIN CO., OHIO.

In a recent number you enquire in regard to the hardiness of the Japan Persimmon in New York. I will give my brief experience of it here. Last Spring I ordered two trees of different varieties, carefully planted them, and they both made a moderate growth. Last Fall, before the cold weather set in, I turned a flour barrel over each. Both of the plants were worked on the native stock; I have examined both; the entire top and the whole graft is killed down to the junction of the graft and stock, which was four inches from the ground. Below the graft the native stock was as green as ever.

Now, Mr. Editor, let me say, the Japan Persimmon tree is like many other expensive curi-

osities extravagantly puffed by propagators, and which to the purchaser is only to end in chagrin and disappointment. I should think them to be about as hardy as the fig tree. Perhaps they would do in South Carolina, Alabama, Georgia, Louisiana, and some parts of Texas.

I have now given my experience; if any of your readers in the Northern or Middle States think they can raise them as a hardy standard tree, let them try it.

[Four years ago a Philadelphia friend wishing to get ahead with a stock for nursery purposes, secured a dozen. They grew admirably during the Summer, but were all killed but one the succeeding Winter. This was however referred to the extraordinary severity of that season. We believe that the one plant is still living, though it has not been risked to the "full severity of the Winters" since.

As for the value of the fruit in this climate we do not know of any one in California or Eastwardly than have fruited any. We have very often had sent to us specimens of the dried fruit, prepared by Japanese and imported from Japan. These are excellent; but how much of this delicious character is due to the preparation and how much to the persimmon, we would not like to decide. We know that these Asiatics are famous for their mixtures. A couple of dozen of very different dishes were set out at a Californian banquet, and the guests assured by the Chinese waiters they were "all samee labbit"—it was rat. And we have a strong suspicion that when this much vaunted fruit bears in our country, it "all samee persimmon" over again. At any rate we are in no haste to procure a "very long persimmon pole," whereby to knock down the first prize.—ED. G. M.]

THE BRANDYWINE AND PEARL RASPBERRIES—ARE THEY IDENTICAL?

BY J. A. DONALDSON, ST. JOSEPH, MICH.

In the September number of the *Horticulturist* for 1869, I find the following editorial, taken from the *Practical Farmer*: "At Reese Pyatt's, on the West Chester road, about twelve miles from Philadelphia, we found growing in luxuriance a raspberry called the 'Pearl.' This is of a firm texture, so as to carry well to market, and of a bright scarlet color—always an attraction to purchasers. In market, after carrying twelve miles, it looks as if just picked. They have retailed readily for fifty cents per quart, being fifteen to eighteen cents over market

price. The Pearl is a profuse bearer, of full medium size, fruiting early and picking late, and is a decided acquisition. We found it at several places; at Samuel Holmes, in Burlington County, New Jersey, who has about eight acres of it in full profit, also at Wm. Parry's and other places. Being curious in such matters, we have tried to trace up its history as to who named it, and where it originated, but without success. It is now growing to a considerable extent in Delaware, New Jersey and Pennsylvania. And in the Wilmington market, under the name of Susqueco, as well as in Philadelphia, brings an extra price, and has a uniform reputation."

Wm. Parry says it is very difficult to distinguish them, and makes only this distinction: "Brandywine puts out its leaves a week earlier in the Spring, makes a stronger growth, and the foliage is a lighter green." Another very extensive small fruit grower of New Jersey says: "I have known the Pearl and Brandywine raspberries to be planted side by side, but never saw a fruit grower who could tell which was which, or where one sort left off and the other began. Even when the berries were ripe the difference could not be pointed out. I do not say there is no difference, but if so it is so slight that, in some cases at least, it could not be observed."

Now it is very easy to understand how an editor who does not grow the fruit may be mistaken in regard to the distinction of these two varieties, but how a dealer can be induced in the same market, on the same day, to pay thirty cents per quart for Brandywines when he can get Pearls for sixteen cents per quart, and yet the difference in the fruit of the two sorts cannot be seen by experienced growers. Yet such appears to be the fact, for it is stated on high authority that on the seventh day of July, 1871, raspberries sold in Philadelphia as follows:

Black Cap, 5 cts. per quart.	Philadelphia, 8 cts. per quart
Pearl, 16 " "	Susqueco, 30 " "

[It is said in the public prints that "thousands" are often subscribed "just to start the list" on church debts, with the understanding that these "leading" subscriptions are not to be called for. We fear that often the extraordinary prices many new fruits "bring in market" are a little of this character. The point our correspondent makes is a good one. If two raspberries are so near alike that good judges can hardly tell the difference, what was it that induced thirty cents for one and sixteen for the other?—ED. G. M.]

PEAR TREES.

BY ISAAC HICKS, OLD WESTBURY, L. I., N. Y.

No trees have disappointed us like pears. They frequently bear a good crop a few years and then fail. That most excellent pear, the Lawrence, is generally cracking and covered with a fungus like its reputed parent, the White Doyenne; and Vicar is scarce worth growing. We have one variety that has never failed; it is hardy as an oak, leaves hang on through the season, and the fruit is pretty good. It is but little cultivated, but the Meriam will pay us, I believe, better than any other variety.

REMARKS ON A FEW NEW AND OLD FRUITS.

BY ISAAC HICKS, OLD WESTBURY, N. Y.

Of all the Winter apples we have seen none excel in profuse bearing the Smith's Cider. It is not a rapid grower, especially in the nursery, but it is a beautiful fruit, not of the highest flavor, but where it is known is a great favorite. Tetofsky I think will disappoint some of its planters. It is not a new apple, as I was informed about it from a fruit grower in Orange County thirty years ago, and on inquiry recently when there, was told it was a poor grower and a short lived tree, and was not now planted out by those acquainted with its habits.

I have been watching for three years the New Rochelle Raspberry raised by S. P. Carpenter of that place. It is quite distinct from any other variety in its manner of growth of cane and great productiveness of fruit. Of course we cannot tell how it will succeed in other than the rocky soil of Westchester, but hope it will have an extensive trial. The berry is purple, shaped like a wide spread thimble, and as good if not better than the Philadelphia, and as I have none to sell am impartial.

The Yosemite Plum, found among the Sierras of California, is a profuse bearer, of medium sized fruit, and seems to be curculio-proof. On two trees I saw loaded with plums, and each plum bearing the curculio's crescent, none had penetrated. The fruit is somewhat astringent, but if it elsewhere is proof it will be well worth planting.

In planting an orchard I consider the first requisite to be, does the variety grow well? The second, is it a good fruit and regular bearer? Third, is it a good apple to sell and of a large size? I have many nice varieties but poor growers and too small to sell well. There are

now plenty of varieties known to fill all these requirements to select from.

HARDNESS OF THE JAPAN PERSIMMON.

BY A. B. C., PHILADELPHIA.

A few years ago I purchased a dozen Japan Persimmon plants, desiring to be ahead in possessing so reputable a novelty. I kept one plant under protection during the Winter season, and left the rest out; but they were all dead in the Spring. The other I kept protected in the Winter until it should get strong when I thought it certainly would take care of itself. By last Fall it had a stem about three inches round, and the whole plant was about four feet high, and I thought now if ever it ought to be able to take care of itself, so it was left out as other trees are without any protection. But this Spring it is dead, root and branch. The season as recently noted in the GARDENER'S MONTHLY, has been very unfavorable for the twiggy evergreens on account of the very high and cold winds which prevailed; but for deciduous trees the Winter was a fair average one. I have on my grounds some plants of the Oregon Sycamore Maple which always looses some portions of its branches, in proportion to the severity of the Winter; but this season it has suffered rather less than usual. I feel quite sure that we shall never be able to grow the Japan Persimmon in the vicinity of Philadelphia.

HOW I WAS RUINED BY A GOOSEBERRY.

BY S., CLINTON, N. Y.

My name is Smith. The family name is old and honorable. We are very proud of it. It has been traced back to Shem, one of the sons of Noah, with the usual philological modifications. Three brothers of the name came over in the Mayflower or soon after.

It was always a tradition in the family that some one of the name would be elected to the American Congress. Five had already been hung before it fell to my lot to be the honored Vice-President by the votes of my countrymen.

I had been re-elected, and by the advocacy of moral popular measures had myself become popular. One of my speeches had been published at government expense and widely circulated. My reputation was untarnished and the future looked to be full of promise.

Just at this juncture the hand of fate intervened, and I fell a victim to horticulture. The

cause of my political disaster was so unexpected, so contemptible that I am ashamed to name it. One of my constituents was an enthusiastic gardener. He had his hobbies: one of them was the Gooseberry. A hobby that may he be compelled to ride after death. He had innumerable seedlings. To those he had yoked the names of all the public men in the land. My own name duly written on a zinc tag hung on one of those bushes. It was sent out to the world as the great success of the season; the John Smith Gooseberry, large, smooth, hardy, prolific, sweet.

Thousands of those gooseberries were disseminated among my constituents. They bought it on credit of the name. It must surely be a fine thing being named after our Congressman. It was thorny, mouldy, small, bitter, barren. It was however hardy. It would not die. That gooseberry made me one thousand enemies at first hand. Those thousand made me five thousand more. It cost me my seat in Congress. The District became full of thorns for me. Instead of the Hon. John Smith, our representative, I became Gooseberry John. I tried to convince the public that I had no hand in the swindle. Men would not listen. I ought not to lend my name to such things. Sure enough one's name is not to be easily loaned. It is the last thing to be borrowed, even after his cow and his spectacles.

I was obliged to move from that region. My reputation hung like a last year's scarecrow on a prickly gooseberry bush. It was too late to begin political life over again elsewhere. I am now raising sheep in Texas. There is not a gooseberry allowed to grow on my ranche. Will not seedling raisers let alone the names of honest philanthropists and patriotic office holders? They have worked hard to secure a name. It is their sole capital. It should not be borrowed, at least not without the consent of the owner. It is bad enough to be compelled to share with babies, without losing all on a gooseberry. Call your seedlings Ralph Farms, Wonderful Amazement, but not John Smith.

PEACH CULTURE.

BY PLEASANTON HAMM, NEAR DOVER, DEL.

The peach growers of Michigan seem to be in a great way about the yellows. I neither see nor hear of it here now, but before peach growing became a science, trees were planted in any kind of soil and not cared for, and you could see it

anywhere. I consider the yellows in the peach as a very small thing and easily managed. If your orchard (it should be on nice light dry soil, for it is no use to put it on wet or heavy ground,) is say in bearing, clean out the worms and apply one to two shovelfull of wood ashes, according to the size of the tree. If you plow in the Fall do so again in the Spring, and use the cultivator till the peaches get as big as the end of your thumb. Keep this up, and don't neglect it even if your peaches have been killed this Winter. If this is done and you don't succeed, you may say your land is not adapted for peaches, and pull up your trees.

When a young plantation is put out it is customary to plant in corn for three years and cultivate well. In trimming cut all dead wood and just enough of the limbs for the horses to go under.

EDITORIAL NOTES.

MAKING GARDENS PAY.—The English Crystal Palace Company is having the experience unfortunate amateurs often have. We, in this country, often see that when a gentleman finds himself in straightened circumstances he rarely gets his laundry girl to take in washing; his cook to fill in her extra time in making pies for the pastry cook, his coachman in taking up passengers for a quarter, or hiring out his piano for church fairs or theatricals; but the gardener is called on to sell plants or vegetables. We never understood the system of this selection, but we have generally seen that the result is from bad to worse. The garden department becomes an annoyance and a loss, and we never knew an instance where bankruptcy was staved off by the effort, and the reason is very plain to business people. A gardener who has been educated to garden for pleasure, seldom has any idea of gardening for profit, and he has no chance whatever to compete with those who have long made a business of their labor, and who by competition among themselves have already reduced prices down to the lowest paying profit. Moreover it is hard to explain to the gardener suddenly called on to go to "market" where his "extra" time is to come from, if the garden is to be kept up as formerly.

However, this is what the Crystal Palace Company is now to do. It is poor. It is short of funds to keep the gardens going. It has not had men enough or plants enough to keep things

decent. When the writer of this saw it two years ago half the plants at midsummer had not been set out, for lack of hands, and dilapidation prevailed among the fountains and statuary. Now we see by the papers that the directors have ordered the gardener to "sell the extra plants, to aid in paying expenses," and of course the gardener resigns. It is a lesson for all of us as well as Englishmen.

ADAPTATION TO CIRCUMSTANCES.—The great art of gardening is not so much a great stock of experience as in the ability to so profit by experience, as to adapt one's knowledge to varying circumstances. In Great Britain with its moist atmosphere, a gardener may have great success in tree planting, while in the Atlantic United States, he would have to vary his practice very much to have the same success. So the one who may succeed very well in the East would fail utterly in the arid region of Central United States. Each great district requires very different treatment in trees and plants. There is Colorado, which on the levels has a much milder winter climate than the East has, and yet trees die very easily in comparison with those which are here. Those who went there with Eastern notions could not understand it, but students of the GARDENERS' MONTHLY have learned that trees die in the Winter because the moisture dries out of them, and not merely by any low thermometrical range. As this knowledge spreads in Colorado, planters are achieving success. They protect them from the drying winds and the drying sunlight in the Winter season, and they have all the success they desire. The following extract from the *Greely Tribune* is to the point:

"Dr. Law thinks he will raise some peaches this year, and certainly the present indications are decidedly favorable to that idea. The trees are several years old, and from the first the limbs have been trained near the ground, that they might the more easily be covered with brush, leaves, and loose straw in the Fall. This prevents the alternate freezing and thawing to which they would be subject if unprotected, and the tenderest twigs have passed through the recent severe Winter uninjured, until now the fruit buds are almost ready to burst. The brush of course will not be entirely removed until all danger from frost is over. Some standard apple trees have also passed through several Winters without killing down."

PRODUCTIVE STRAWBERRIES.—A paragraph going the rounds of the newspapers says that Mr. P. T. Quinn gathered from one acre of ground on his farm at Newark, 5,487 quarts of strawberries, which netted him in the New York market, \$626.60. This is about one quart to every eight square feet, or, as usually one half the ground under fruit culture is "headland," alleys, or spaces on which there are no plants, about a quart to every four square feet, and then we have eleven cents a quart to the grower "net"; that is after all expenses of freight and the great "middleman" have been deducted. This is a pretty good showing, but it must be so rare and exceptional an instance, that it will be well to tell those who may be inclined to rush into the strawberry growing on the strength of these figures, that they must not expect to have such luck as this very often. In Philadelphia markets it is considered pretty good for even the best strawberry growers to get five cents "net" on the fruit they sell.

THE GLENDALE STRAWBERRY.—This is a new variety raised at Akron, Ohio, in 1871, and with some reputation in the West.

A STRAWBERRY PROTECTOR.—It is a cheap baked clay saucer, twelve to thirteen inches in diameter, with a hole in the center. The advantages claimed by its use are: A much larger crop; much finer berries; cleaner, and free from sand and dirt; mulching the ground; the retention of the rains to the roots of the vines; killing the weeds; earlier ripening; easier picking. They are turned over as a Winter protection to the vines. Persons who have used it pronounce it the most important invention ever made in connection with strawberry raising.

THE JUCUNDA STRAWBERRY.—This variety seems to have many ups and downs. When first introduced from Europe, it was soon given up as worthless. Mr. Knox, of Pittsburg, gathered together all the varieties he could find for experiment, and found it the best. With his death, it in a manner disappeared from public attention. Now we find the following report of it in Mr. Roe's catalogue:

"The more I see of this berry the more I am impressed with its value. I doubt if it has been much surpassed by any of the new and highly praised varieties in localities where it succeeds. As a market berry, where it can be raised, it has no rival. Its superb beauty and size, and rich color, make most berries look common by

its side. On Broadway it takes the lead. With me it is very productive, and I think it will amply repay good culture on all heavy soils. It continues bearing till very late, and the berries hold out large till the last. It should have a place in every collection. This variety has been more badly mixed than any in the country, but I have now a large pure stock of plants. The young plants are always small, feeble looking."

FRUIT TROUBLES.—When any of our fruit growers have a little trouble to raise fruit, they generally wish that they could "do as they do in Europe." But there too they have enemies to fight, and this is what a correspondent of the *London Journal of Horticulture* has to say about it:

"I had a quarter of gooseberry bushes cut hard down last Spring which had made good heads, but nearly every bud has been taken, so that they will have to be cut hard back again. I have now come to the conclusion that the only safe way to grow common bush fruit is to plant thickly, leaving blank spaces at intervals for the sake of convenience, gathering the fruit and netting the bushes over. Do the netting early in the season, for when once the buds begin to swell, the work of destruction is done in a very short time.

If this plan is adopted, and the pruning delayed until the bushes are green—as gooseberries may be pruned with impunity at such a stage—hoops of green hazel or other pliable wood might be bent over the bushes to support the nets. Some of the long shoots will of course have a tendency to keep the nets from pressing too closely; the hoops to be left until the fruit begins to ripen, as at that time the blackbirds, thrushes, and sparrows are great thieves, and must be guarded against; and we can seldom keep either gooseberries or currants without protection after they show signs of coloring.

Later on come a host of bluebottles, flies, wasps, and hornets, the latter being rather numerous about here. Sparrows, hawfinches, and jackdaws are very fond of young peas, and last Spring the birds nearly cleared a quarter of early peas before they were fit for table use; and I was somewhat puzzled to account for the wholesale manner in which they were taken. I had accused rats of taking them, and had set traps, in one of which we caught a fine old jackdaw. This had a deterring effect, as the peas did not disappear so fast afterwards. Wood pigeons are great garden robbers in Spring. All these depredations take place early in the morning before

the workmen are about. In the Autumn came the tits and spoiled a number of pears; others we were obliged to gather before they were ripe, and many of them shrivelled."

FRUITS OF MICHIGAN.—Mr. T. T. Lyon has prepared a catalogue of fruits of Michigan on the model of the one in use by the American Pomological Society. It is interesting to note that a large proportion of the most popular fruits of the State, are those equally popular in the East.

LE CONTE PEAR.—We wrote this *Le Conte* in our last because we were merely quoting; but Major Le Conte is the proper name of the gentleman after whom the Pear is named, and so *Le Conte* should be the proper orthography.

ORIGIN OF THE BEURRE GIFFARD PEAR.—With a beautiful colored plate the *Florist and Pomologist* says that the variety was a chance seedling discovered by Nicholas Giffard, of Fonassieres, near Angers in France, and was first described in 1840 in the *Bulletin* of the Angers Horticultural Society.

AMERICAN APPLES IN ENGLAND.—Paragraphs go the rounds that American apples, and other American products increase so enormously in price by going through the hands of so many agents, as to make the growers' receipts appear like a single feather in the pound. But we see that American apples sold the past Winter in Covent Garden market London, at about three dollars per barrel.

PEACHES IN DELAWARE.—It is reported that the Peach crop in Delaware, promises to be one of the best known for some years.

HISTORY OF DELAWARE PEACH GROWING.—A correspondent of the *Philadelphia Press* says: "About the time that the great Clayton made his famous boast about Delaware and peach brandy and died, there were some folks who were dimly beginning to see the value that was in the peach as an article of culture and commerce. Probably the first to venture into the business, was Reybold, of Delaware City, in Newcastle county, who planted several large orchards. People laughed at him, and told him he was going into folly; but he held his peace and let them laugh. After the lapse of a brief number of years, his trees began to bear prolifically, and in less than no time he was reaping a bountiful harvest. Well, time went by, and his trees continued to bear abundantly; but, strange to say, it was some time before any one

else could make up their minds to follow his example. Too many followed it years afterwards, though, and found out to their own loss that there was no room at the top. Some years after Reybold had gotten well under way, Reeves and Ridgeway, also of Delaware City, planted immense orchards that also did well. Henry Todd, of Dover, and Jehu Reed, of Frederica, followed the next year, the former on a larger scale than any up to that time. His orchards covered hundreds of acres, and he has told me that his returns from one week's sales, have given him \$3,000 clear profit. This was in 1840-45; and not much later people began to awaken to the fact that peach growing might be made a vast source of revenue. Having realized this, they at once embarked in the industry, until it became almost general. As people became more acquainted with it, and more decided that it was profitable employment, the whole peninsula, from the Delaware to the Chesapeake, and from the Brandywine to the Breakwater, became more and more like a vast fruit orchard."

SPARROWS AND GOOSEBERRY BUSHES.—The *London Journal of Horticulture* says that sparrows and other small birds, have been very destructive to the Gooseberry bushes during the past severe Winter in England.

THE SNOWFLAKE POTATO.—According to Dr. Warder, as reported in the proceedings of the Montgomery County (O.) Horticultural Society, this fine flavored variety is unproductive in the West.

EARLY PEACHES.—J. H. Parnell, West Point, Georgia, writes that he will probably have Alexander, Amsden, and Beatrice peaches ripe by the 25th of the month.

FINE PLUM ORCHARD.—Some weeks ago we noticed the plum orchard of Judge Ramsdell, of Traverse City, Michigan, an account of which was given by Prof. Beal in the *Rural New Yorker*. The orchard consists of 700 trees, set twelve by sixteen feet; these have been planted at different times within the last six years. Hoed crops have been planted in the orchard; a sown crop of buckwheat injured the trees. Half a bushel of wood ashes to each tree much improved them. Judge R. excludes insects from climbing the trees by a belt of tin encircling each, the ends of which hook together, the lower edge is pressed into the soil. The insects cannot crawl up over the smooth surface of the tin. Curculios are killed by the means of an unremitting applica-

tion of the jarring process, which we have frequently described. From past experience, he would plant at the following rate for market, for each hundred:

20 Washington,	20 Jefferson,
17 Bradshaw,	17 Smith's Orleans,
16 Lombard	10 Lawrence Favorite.

From 200 of his oldest trees, he picked three years ago fifty bushels; the next year seventy-five bushels, and the past season 150 bushels—the trees then six years old. The average price was \$4.00 a bushel.—*Country Gentleman*.

GRAFTING WAX.—Yellow wax, one pound nine ounces; black pitch, three pounds two ounces; white pitch, three pounds two ounces; tallow, five ounces. Place the whole in an earthen pipkin over a gentle fire, stirring it with a spatula as it melts, taking care to incorporate the ingredients thoroughly. This kind of grafting wax will remain solid at ordinary temperatures. In order to use it in the rose garden, we must provide ourselves with a charcoal or coke stove, or if only a small quantity is to be used, a spirit lamp will serve the purpose, more especially when the spot is at a distance from the house.—*Garden*.

SCRAPS AND QUERIES.

HARDINESS OF THE JAPAN PERSIMMON.—J. R., Cincinnati, Ohio, says: "Japanese Persimmon was tried in S. S. Jackson's nurseries this last Winter, and was killed. He had several kinds."

DISEASE IN STRAWBERRIES.—E. S. B., Bristol, Pa., says: "In the January number of the MONTHLY I read Chas. Black's theory of the strawberry blight being caused by the presence of lice on the roots. I shall not demur from such authority as Mr. B., but I would like him to give me a reason for the blight on the Forest Rose, Jucunda and French, when there was no sign of lice on their roots; and why it was that the Sharpless and Crescent Seedlings showed no signs of blight, but grew luxuriantly when their roots were covered with lice? In the April number Mr. John T. Lovett gives a cure for the blight by the application of wood ashes, which he says is a dead shot to the louse. I think Mr. L. is mistaken about this, as he used ashes as a fertilizer on his strawberry patches last year, and the lice flourished as well among the ashes as they did elsewhere. Will he please tell whether he used leached or unleached ashes?"

A WONDERFUL HEAD OF LETTUCE.—C. B. Fairchild, Raleigh, North Carolina, sends us a head of lettuce weighing three lbs. It was hard, crisp, and excellent eating. Mr. F., thinks it a distinct variety, and we are inclined to think he is right, though it requires several allied sorts to be grown side by side before we can decide this. The most remarkable thing about this lettuce is that its roots only weighed two ounces, and, as we note by the ends of the fibres, there could not have been many more left in the ground. But we do not put this fact forward as any argument that because of this wonderful disproportion between roots and leaves, it is an argument that the plant must be carnivorous.

THE WATER APPLE.—A correspondent says in a private letter, referring to a note in the GARDENER'S MONTHLY some months ago: "I am glad you are pleased with the Water Apple. Some ten or twelve years ago I sent grafts all over the country. Your report is the first I have heard from. No apple tree could be planted in a small place that would be more ornamental, on account of its handsome shape and the large quantities of apples it bears. For extensive orchard culture they are too tender, but I have hundreds of trees bearing, they pay very well especially in seasons when apples are scarce."

DISEASE IN GRAPE VINES.—Geo. C., Whitinsville, Mass., writes: "I send to your address by this mail, a few grape vine roots, packed in damp moss, taken from a vine border I made six years ago when the vines were planted. The vines all made a strong but not an extra growth. The vine started well and made some growth and everything seemed to be going on well till about two weeks ago, when they began to die, beginning at the top of the cane. Knowing that it was not caused by the management inside I begun to look in the border outside and found the roots in the same condition as those I send you. Would like to know the cause and a

remedy. The border is well drained, two and a-half feet deep and sixteen feet wide, and is well filled with roots. The border in the Fall was covered with about four inches of stable manure; on top of that about one foot of meadow hay and all covered with shutters. The covering was not put on till it got rain enough to prevent drying before Spring. I propose to cut down the vines and see if I can get them to start from the bottom; but if I fail in that I will dig them out, turn over the border so as to get out all the old roots I can and plant young vines. Instead of cutting down the old vines on account of the condition of the roots, would you advise taking out the old vines at once?"

[On reading this we suspected it might be a case of Phylloxera, but on examining the roots sent, by a microscope, it was found that all the younger rootlets were attacked by a minute fungus spawn, apparently of an *Agaricus*, and seemingly precisely the same as that which attacks peach roots resulting in the disease known as "yellows," and which we found destroying the roots of Rhododendrons, as detailed in our magazine last Summer. In the case of a Norway Spruce and White Pine to which the disease was communicated from the spawn about the roots of a "yellowed" peach tree, and which evergreens had the "yellows" in consequence for two years, there was an absolute recovery when the trees were taken up and removed into new fresh soil. It is possible that if these grape vine roots are carefully lifted, cleaned, and new soil replaced around them, and then the canes severely pruned, the plants would recover. This plan of lifting hot house grape vine roots is now very common in England. When there two years ago the writer saw a grapehouse in excellent condition, full of superb fruit, on the grounds of Mr. Clayton near Ryde, which had been so treated, and which Mr. Smith, the gardener said were "on their last legs" a few years ago before the practice had been applied.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

LARGE TREES ON LONG ISLAND.
BY ISAAC HICKS, OLD WESTBURY, QUEENS, CO.,
NEW YORK.

I enclose some slips from a Long Island pa-

per written by Elias Lewis, of Brooklyn, an active member of the L. I. Historical Society, who has made many trips through Long Island noting its geological aspects and collecting descriptions of the large trees found here. He has made a list of the varieties of trees and

shrubs indigenous to our Island, and sketches of their habits and usefulness, and when completed and it is published will endeavor to send a copy to thee. This appears to be only a few extracts from his notes. The largest tree I believe found here is a Black Walnut, growing on the farm of the late W. C. Bryant, at Roslyn. It is twenty-eight feet in circumference, and is a monster. Its arms must extend to a radius of fifty feet from the body, and the branches would make very large trees of themselves. Our trees seldom rise very high in proportion to their size, except the Liriodendrons; and finer specimens I have no where seen than are found growing among us. Long Island is much better wooded than it was when first discovered. The settlers soon protected the scattered trees from the frequent fires, and soon learning the importance of preserving the young timber from the depredations of cattle, it has greatly increased in quality and quantity. When timber is cut off in forty to sixty years, it grows thicker and faster; many pieces of woodland fenced in and properly cared for are worth from one to two hundred dollars per acre, while land immediately adjoining and cleared is not worth fencing. We have found no evergreen withstands the salt spray in proximity to the ocean, like the Austrian Pine and Poplars and Dutch Cork Elm among deciduous trees.

The following are the extracts referred to by Mr. Hicks from the *Brooklyn Eagle*:

"For timber the locust ranks among the most valuable of Long Island trees. It is abundant and widely distributed. It grows on almost every variety of soil, but best in the light or sandy loams. In Queens County, especially from Oyster Bay westward, this tree has been seriously damaged by insects, but from Stony Brook eastward to Wading River, in Suffolk County the insects have not appeared, and the trees are extremely thrifty and beautiful. Among the most persistent enemies of the locust are the caterpillar of the locust tree moths. This attacks old and large trees, boring the wood in winding avenues; a grub of the painted Clyrus beetle burrows in the young bark, devours its soft inner portions in the Fall and penetrates the wood in the Spring. Beside these is a small reddish caterpillar which lives in the pith of small branches, causing a swelling and sponginess of the branch, so that it readily breaks. For full and interesting details upon this subject we refer the reader to Dr. Harris' work on 'Insects

Injurious to Vegetation' and to our 'Common Insects,' by Dr. Packard.

"Three Locust trees on the lawn around the residence of Daniel Bogart, Esq., of Roslyn, are one foot from the ground, nine, ten and twelve and a-half feet in girth. A still larger one in the dooryard of the late Elwood Valentine, at Glen Cove, was measured by Isaac Coles, Esq., and found to be thirteen feet in girth. Several nearly as large have been cut down or have fallen from decay at Glen Cove, Doxies, Sands Point and elsewhere during the last thirty years. These trees were among those imported from Virginia. It is believed that those on Mr. Bogart's ground, several now or recently at Sands Point and two on the dooryard of the old Thorne mansion at Little Neck, now occupied by Eugene Thorne, Esq., are of the first imported and planted on Long Island.

"The date must have been not far from the year 1700. It is not doubted, I believe, that they were first introduced by Captain John Sands, of Sands Point. He moved from Block Island to that place about 1695, and died in March, 1712."

"A few more facts illustrating the character of our forests may be of interest. Near the residence of Samuel B. Parsons, Esq., of Flushing, are two White Oaks, estimated by that gentleman to be as old as the celebrated Fox Oaks were at the time of their fall. Two Chestnut Oaks, on land of William T. Cocks, near Glen Cove, were found by Isaac Coles to measure fifteen feet in girth, respectively. A White Oak on land of Mrs. Young, of Greenvale, is fourteen and three-fourths feet around, and a hickory near by is twelve feet in girth. The Post Oak is found by Mr. Elihu Miller, at Wading River, to measure from nine to eleven feet in girth. The Spanish or Pine Oak attains a large size in Kings County, and the so-called scrub oak grows in favorable soil to a height of twenty-five feet. A tree of that species in Greenwood, is thirty feet high. The White and Black, or the Sweet Birch, the Hornbeam or Ironwood, the Dogwood, Sassafras, Tulip, Tupelo or Pepperidge, Sweet Gum, Red Maple, Red Mulberry, the Black Wild Cherry and Black Walnut, with many others abound in woodlands or in swamps and hedgerows. Mr. Miller called our attention to the value of the White Birch and Balsam Poplar, as among the deciduous trees which grow and flourish in the poorest soil. Few trees are clad in more beautiful foliage than the White Birch.

"The Button Ball, *Platanus occidentalis*, attain a large size. One at Wheatley, in Queens County, is twenty-one feet in girth and a few feet above the ground has five immense branches, their girth being respectively, ten, nine and one-half, eight, and seven feet. The trunk above the branches is thirteen feet around."

EDITORIAL NOTES.

FORESTRY IN JAPAN.—The forestry question is exciting as much attention in Japan as in America; and new forests are being planted in locations wherein it will probably prove profitable in comparatively few years.

FOREST FIRES.—Forest fires require more looking after than the woodman's axe. It is a difficult question to decide what to do. It has been suggested that premiums should be paid to those who put them out before they extend far; but this would tend to increase fires. It would be often a profitable way of starting a job. Laws might be enacted against the careless hunter, or camper out, or negligent railroad company; but laws are too expensive to enforce, and delinquents hard to find. Perhaps if careless people could be traced, and made rigorously responsible for damages to the extent of their means, it might do some good in establishing a habit of carefulness. Forest fires have been unusually heavy this season, and they deter forest planting more than perhaps any other difficulty the planter is liable to encounter. Still this does not interfere with small and isolated plantations.

EUROPEAN GROWTH OF THE DOUGLAS SPRUCE.—The *Journal of Forestry* gives an account of some Douglass Spruces planted in Ireland thirty years ago that are now seventy-five feet high, and the stem at five feet from the ground girths four feet. In the same time the Menzies Spruce has reached eighty feet, and a girth of six feet. The *Sequoia gigantea* from which so much was expected, suffers from the same fungoid attack which has made its culture in the United States impossible.

THE ENGLISH OAK IN CALIFORNIA.—The coniferous timber of the Pacific States forms no mean portion of her wealth; and yet the hard woods have to be imported from the Eastern States. Quantities go from Virginia. Suggestions are being made to plant the English Oak

extensively in California. In the Eastern States the English Oak grows faster than it does in its own country; faster than any indigenous species.

A LARGE TULIP TREE.—A daily paper tells us that what is supposed to be the largest tree in the Southern States is a Tulip-bearing poplar, near Augusta, Ga., which is 155 feet high and nine feet in diameter, its lowest branches being fifty-five feet from the ground.

A LARGE EUCALYPTUS.—The exact figures of the Giant Blue Gum of Australia are seldom met with. The *Queenslander* notes the cutting of a giant Eucalyptus felled in the Dandenong Range, Australia, that had attained the height of 300 feet. The following were its dimensions: At one foot from the ground the circumference was sixty-nine feet, at twelve feet from the ground the diameter was eleven feet four inches, at seventy-eight feet diameter nine feet, at one hundred and forty-four feet diameter eight feet, at two hundred and ten feet diameter five feet.

PECAN NUT HICKORY.—The *Indiana Farmer* says: "Montezuma is the most northern point in Indiana that this tree grows wild. Some trees under culture bore in twenty years from planting the nut; but we suppose they would fruit earlier than this under favorable circumstances."

DURATION OF LARCH TIMBER.—An editorial note in the *Country Gentleman* says: "Its durability is greatly controlled by the soil in which it grows. The timber obtained from mountains has been found to last a long time; that which has been raised in the rich valleys of the West has decayed rapidly."

TIMBER PLANTING IN MASSACHUSETTS.—The Massachusetts Legislature a few months ago enacted "that all plantations of timber trees in this commonwealth, upon land (not at the time of said planting woodland or sprout land, and not having been such within five years previously), the actual value of which at the time of planting does not exceed fifteen dollars per acre of any of the following kinds, to-wit: Chestnut, Hickory, White Ash, White Oak, Sugar Maple, European Larch and White Pine, in number not less than two thousand trees to the acre, shall, together with the land upon which the same are situated, be exempt from taxation for a period of ten years from and after said trees shall have grown in height four feet on the average, subsequently to such planting; provided that said exemption shall not extend beyond

such time as said land shall be devoted exclusively to the growth of said trees; and provided, further, that the owner of such plantations shall appear before the board of the assessors in the towns where the same are located and prove to the satisfaction of such board the herein-mentioned conditions."

This is well so far as it goes. Its chief value is in showing tree planters that they have public sympathy. But we fancy that tree planting on land not worth over fifteen dollars an acre, would be land very far from market, and it will be hard to make timber culture pay there, even though exempt from taxes.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

ARE PLANTS FED THROUGH THEIR LEAVES?

BY MR. PETER HENDERSON.

The discussion about the "insect eating" plants, has brought this in as a side issue, though one of far more practical importance to horticulture than the main question.

I know that the position I am about to take on this question is not only in opposition to that held by yourself, and your correspondents, Prof. C. V. Riley, and Mr. Thos. Forfar, but many others. But let us see how far such opinions are borne out by the following broad facts.

Within six miles of where I write, we have three large manufactories of fertilizers; one an immense ground bone manufactory at Newark, N. J.; another, the Lodi Poudrette manufactory situated on the Hackensack Meadows; the other, the manufactory for the Blood and Bone Fertilizer, located right in the midst of our market gardens at Communipaw, N. J., all of which are within ten miles of the city of New York. The effluvia from these manufactories is carried in the air for miles, and in the immediate vicinity is almost unbearable, yet if any one think that the meadow grass in the vicinity of the Poudrette factory, or the vegetables grown contiguous to the blood and bone establishments are benefited by the "absorption," any more than the same class of vegetation a dozen miles away, he will be quickly undeceived if he will take the trouble to examine. I have critically examined them on several occasions, and at all seasons, in company with some of our most experienced market gardeners here, and the result has ever been the same, no difference what-

ever was apparent either to grass, trees or garden vegetables in the closest proximity to the works. Now if our examination was correct, and a verification of it can easily be made any Summer's day, it would seem that the effect of "putrid beef tea placed under a stand of plants," as suggested by your correspondent, Mr. Thos. Forfar, would be very slight indeed.

Prof. Riley says that "as a practical gardener Mr. Henderson will not deny that many plants with tender foliage may be nourished and in fact frequently are nourished, by the application of liquid manure to their leaves." To this I reply that my practice which has extended over a period of over thirty-five years, and which I believe has been as varied and extensive as that of most men in that time, has never yet shown me a single instance wherein I was *certain* that plants either absorb liquid manure, or even fertilizing gases by their leaves.

It is the easiest thing in the world to "mistake causes." The school of medicine, less than fifty years ago bled and blistered mankind for nearly all the ills that humanity is heir to; today the newest fledged saw-bones thinks he knows better, and looks pityingly on the Sangrados of half a century ago! So may not some of us, (who are certainly far from being as intelligent a class as the medical profession), have got off on a wrong tangent? Even when you, Mr. Editor, assume that the rank growth of plants grown in hotbeds, over those grown in other artificial heat, is due to the absorption of nitrogenous matter through the leaves, it is possible you may be mistaken in your assumption, for no doubt you have seen in pine pits where tan bark was used for plunging, a luxuriance of growth quite equal to that of

any hotbed formed of dung, and yet we know that the exhalations from tan bark are not likely to contain either ammonia or nitrogen. The famous Boston hotbed-grown lettuce, by which our New York markets were almost exclusively supplied ten years ago, now finds a formidable rival in the lettuce grown in greenhouses, hundreds of which, covering many acres are now in use for that purpose in nearly every Northern State. Budlong & Co., Providence, R. I.; Abraham Van Sicklen, Jamaica, L. I.; Mabbitt & Wills, of Riverton, N. J., and Muir Bros. of Newark, N. J., are all extensive greenhouse growers of lettuce for the New York market; and I am informed by a leading commission dealer, who sells for the two firms first named that their lettuce now far exceeds in quality the hotbed-grown Boston lettuce, though no manure in any shape is used except at the roots. My belief is, that it is the uniformly proper condition of *moisture* that we get in a dung hotbed, that gives us the luxuriance of growth, for when we produce the same conditions in the atmosphere of the greenhouse, we know that we attain equally good results. That leaves absorb moisture from the atmosphere is so generally a received opinion that when I question its truth, I well know that I am trenching on dangerous ground, but let us examine. If we take a plant from a greenhouse that is kept continually charged with moisture and place it for a few hours in a dry room its leaves begin to wilt and droop. Now the believer in the moisture-absorbing theory will say that this is because it has not sufficient moisture in the dry air for its sustenance, but is it not just as easy to suppose that it is because the plant *evaporates* its moisture in a dry atmosphere, while it would not do so in a damp one? Or in other words the moist air acts only as a negative benefit, *preventing* the evaporation of the moisture from the leaves which has been taken from the soil by the roots. I believe that you can no more feed a plant through its leaves, than you can feed man, or any other animal, for any length of time through the pores of the skin, and that it is from the roots and root only, in plants that absorption can take place to any noticeable extent.

In experimenting on this subject a few years ago I suspended two large stems of *Cactus triangularis* and *C. grandiflorus*, in a moist stove, weighed them when put in, and at the end of six months weighed them again, and though they kept fresh and green, they had

neither increased nor diminished in weight, though the air was pregnant with moisture and often ammonia too; for we use liquid manure largely in all our greenhouse operations, but we use it at the *roots* only, and if by chance it gets on the leaves we at once wash it off with the hose, believing it to be injurious rather than otherwise, in clogging the pores.

When a boy, I was for some time clerk in a liquor store in the city of Edinburgh. When whiskey was sent to us from the distilleries it had to be pumped out of the puncheons into smaller kegs for distribution. On every pumping day our old Highland porter invariably got drunk, but he always protested he was a victim of circumstances, a martyr to duty; the smell from the whiskey made him "light headed." It was imagined for some time that Donald might have been so constituted that the fumes affected him and no one else, but we had him watched, and found as we had before suspected, that he was taking his stimulant through his mouth to his stomach; so I rather suspect it will be found in all such cases as Professor Riley alludes to, that when plants are supposed to be stimulated by application of liquid manure to the leaves, that enough may have run from the leaves to the *roots*, the stomach (?) of the plant, to stimulate growth.

[We offered the hotbed observations not as direct proof, but as collateral evidence. As to the main point, can plants absorb and digest nitrogenous matter through their leaves? We know they do so use carbonic acid in that way, and there is nothing therefore impossible in their using other elements in like manner and that they really do use nitrogen through their leaves we think is made a certainty to most persons who will carefully study Mr. Darwin's facts as given in "Insectivorous Plants."]

EXPERIMENTS IN CROSS-BREEDING PLANTS OF THE SAME VARIETY.

BY PROFESSOR W. J. BEAL.

The following article we copy from the *American Journal of Science and Arts* for May. It formed part of Professor Beale's lecture given last Winter before the farmers' institutes. With reference to it, Prof. A. Gray, of Harvard University, writes that "the experiments are very neat and to the purpose," and then he gives the article the place of honor in the journal of which he is one of the associate editors.

"Early in the Spring of 1877, the writer received the first review of Darwin's book on 'The effects of cross self-fertilization of plants.' The book seemed to be a most instructive production, one which has not been excelled in importance to the farmer by any work in this or in any age. But, in the words of the *Gardeners' Chronicle*, it is certain that these practical results will be a long time filtering into the minds of those who will eventually profit most by them.' If the results are so valuable, and if it will take a long time to reach the farmers, this 'filtering' process cannot begin too soon, nor be too continuously kept before them. The writer lost no time in trying similar experiments on several of our cultivated plants, as apples, onions, Indian corn, and beans.

"*Experiments with Indian Corn.*—Yellow dent corn was obtained from two men in different portions of Michigan. In one case the corn had been kept ten years or more on the same farm, and in the other case fifteen years or more on the same farm. In both cases the corn was much alike. The two lots of corn were planted in alternate rows in a plot by itself. The tops of one set of rows were all cut off, thus securing a perfect cross on those stalks. Seed from this cross was saved and planted to compare with corn not so crossed. The yield from the crossed seed exceeded the yield of that not crossed as 153 exceeds 100.

"*Crossing Black Wax Beans.*—There were, as shown in the plat below, eight short rows two feet apart, with the plants finally thinned on July 10th to five plants about fifteen inches apart in the row. The seed for half the rows (alternating) is called 'old stock,' and was raised in the garden the previous year, from seeds which descended from those raised on the place for nine years or more.

"The 'crossed stock' was obtained as follows: In 1877, some seeds of the same variety of beans purchased of Jas. Vick. These were planted in a drill evenly mixed with seeds of the old stock. These grew and looked alike, but the flowers were inter-crossed by bees. Seeds of this crop are termed 'crossed stock.'

"On May 31, 1878, fifteen seeds were planted in each of the eight rows. The plants from the crossed seeds were generally much the largest, and as will be seen kept green the longest.

In ten days after planting, seeds of the old stock came up in each row as follows: - - - - - 4 7 7 9=27
In ten days the crossed stock came as follows: 12 10 6 11=39
In seventeen days the old stock came as follows: 7 11 10 10=38
In seventeen days the crossed stock came as follows: - - - - - 12 13 10 14=49

"On July 22, the pods fit for cooking on each plant numbered as follows. The pods on the two lots of plants were about alike in size:

Old stock	-	-	-	-	36	1	dead	7	13=57
Crossed stock	-	-	-	-	dead	0	0	41	0= 41
Old stock	-	-	-	-	0	0	8	0	11=19
Crossed stock	-	-	-	-	6	22	34	0	17= 79
Old stock	-	-	-	-	30	0	0	0	0=30
Crossed stock	-	-	-	-	41	37	21	31	0= 130
Old stock	-	-	-	-	0	0	0	0	2=2
Crossed stock	-	-	-	-	16	29	30	26	2= 103
Total old stock	-	-	-	-	-	-	-	-	=108
Total crossed stock	-	-	-	-	-	-	-	-	=353

"This variety is greatly raised for the purpose of supplying an early crop of beans to eat pods and all while young. The difference will be seen to be over three to one in favor of the crossed stock.

"On August 9, the pods fit for cooking or past that condition were as follows:

Old stock	-	-	-	-	52	60	dead	43	45=200
Crossed stock	-	-	-	-	dead	24	16	51	83= 174
Old stock	-	-	-	-	38	46	44	71	37=236
Crossed stock	-	-	-	-	35	52	58	69	62= 276
Old stock	-	-	-	-	39	34	30	47	87=237
Crossed stock	-	-	-	-	63	48	11	66	61= 249
Old stock	-	-	-	-	38	46	54	33	39=210
Crossed stock	-	-	-	-	38	90	52	88	81= 340
Total old stock	-	-	-	-	-	-	-	-	= 883
Total crossed stock	-	-	-	-	-	-	-	-	=1048

"On or before September 16, all were harvested. The pods on each plant numbered as follows:

Old stock	-	-	-	-	60	62	dead	45	39 = 206
Crossed stock	-	-	-	-	dead	160	54	29	139 = 382
Old stock	-	-	-	-	45	48	36*	71	37 = 237
Crossed stock	-	-	-	-	36	145	91	72	51 = 395
Old stock	-	-	-	-	45	35	37	38	35†= 190
Crossed stock	-	-	-	-	103	68	55	128	75 = 429
Old stock	-	-	-	-	30	39	48	28	40 = 185
Crossed stock	-	-	-	-	136	159	58	172	128 = 653
Total old stock	-	-	-	-	-	-	-	-	= 818
Total crossed stock	-	-	-	-	-	-	-	-	=1859

On comparing the table for August 9, with that of September 16, it will be seen that some plants of the old stock had lost part of their fruit. This was on account of the decay of 101 pods. The table also shows that two branches were broken and had died before maturing. These contained 73 pods.

Adding 101 and 73 to 818, we have 992 pods of the old, against 1,859 of the crossed. In harvesting, all those pods badly damaged were rejected. The beans of the old stock weighed 29.77 ounces avoirdupois, those of the crossed stock weighed 70.33 ounces avoirdupois, or nearly in the proportion of 100 to 236.

*This plant contained a dead branch with twenty-one immature pods.

†This plant contained a dead branch with fifty-two immature pods.

The difference would be a little less if we allow for the broken plants and decayed pods on the old stock. One plant of the old, and one plant of the crossed stock died early and produced no fruit.

Six lots of 50 beans each were taken at random from the old stock and weighed as follows:

50 seeds	-	281 grains.	50 seeds	-	260 grains.
50 seeds	-	262 grains.	50 seeds	-	259 grains.
50 seeds	-	279 grains.	50 seeds	-	284 grains.
Total,	1,616 grains.		Average,	269½ grains.	

The same number of seeds was taken from the crossed stock and weighed as follows:

50 seeds	-	220 grains.	50 seeds	-	210 grains.
50 seeds	-	219 grains.	50 seeds	-	210 grains.
50 seeds	-	200 grains.	50 seeds	-	220 grains.
Total,	1,279 grains.		Average,	213¼ grains.	

The average weights of an equal number of beans from each stock were nearly as one hundred to seventy-nine in favor of old stock."

[It scarcely follows that "crossing" has produced the results noted by Prof. Beal. Experiments with corn by cutting off the tassel, have shown that this alone was an advantage on the crop and its progeny. Nutrition goes wholly to the ear instead of being divided with the tassel. If we could discover a certain law, either by crossing or any other way, by which the men who get 100 bushels of corn to the acre, can get 153 bushels, it is certainly worth demonstrating. But, how easy it is to attribute results to wrong causes, is seen by the history of the Bean in this question of cross-fertilization. In 1857 Mr. Darwin evidently believed the Bean could not be fertilized at all, except by external aid. In his own experiment only those fruited when protected from bees, that had the wings of the flowers pressed down as a bee presses them when entering the flower. But the evidence that beans do seed just as freely when no bees visit them is so conclusive that the theory has been modified, and it now reads "cross-fertilize if you can, but self-fertilize if you must, is nature's law for flowers." But Prof. Beal assumes that because the plants were grown together they must have been "crossed by bees;" and he has no other reason for calling them "crossed stock."

We find nothing "below" showing where "the plants kept green the longest," unless we are to infer it from the fact that on the 22d of July there were a greater number of green pods on one lot than on the other. The pods were not, however, any larger in size in one case than in the other, so that the result must be sought for in number, not in size. The beans

not being increased in size or weight, we have only the number of beans as the result of crossing. This result is that for every 100 pounds of beans we get from seed uncrossed for nine years, we may get 230 pounds from crossed seed.

Now if we remember the modern, and undoubted doctrine that the bean can fertilize itself if neglected by the bee, and therefore some might have been neglected, and so seeded from their own pollen; and further that though the plants were mixed together the chances would be more than equal that the flower would have pollen from some other flower on the same plant as from the flower of a neighboring plant, at least three-fourths more of "advantages" ought to be given to the figures, and we ought to have nearly 375 pounds for the crossed to 100 pounds of the non-crossed per acre. In view of such stupendous results from crossed seed, Dr. Gray's remarks that the experiments "are very neat and to the purpose" have more than a poetical meaning. If we can put four dollars in our pocket instead of one, there is a very prosy but substantial purpose before us.

The teleological part of the question seems equally foggy. It is assumed that it is an "advantage" to the race that the individual plant should live a few days longer, and bear more seeds, as the result of crossing over the fair average duration of one not crossed. It is a well known law of nature that an extra advantage to the individual is rather at the expense of the race. But we do not discuss this now. What we desire is to ask cultivators whether we may really look for such figures from crossing as are indicated by Professor Beal's figures; or from any laws of nutrition already well known.

There were ten more uncrossed than crossed beans failed to come up; but why should any fresh beans, crossed or uncrossed, fail to grow? And as in one case we have seventeen against sixteen in the row experiment in favor of the uncrossed beans, who knows how many more of these "advantageous" figures may have been produced if the other thirty-two beans had been allowed to grow?—ED. G. M.]

EDITORIAL NOTES.

FRUITING OF WISTARIA SINENSIS.—In a note on the fruiting of *Wistaria sinensis* in Europe,

communicated to the Linnæan Society, by Mr. W. T. Thiselton Dyer, the author avers, from his own and others' observations, that plants trained on a garden wall at Glyn, east end of the Lake of Geneva, yield abundance of brown tomentose pods annually. Near the town of Geneva, however, fruiting is of rare occurrence, but again more frequently at Lyons and the Rhone valley. Fruiting, he suggests, may be a question of temperature, and not of nutrition dependent on presence or absence of support to the stem and branches. From the above and other data Mr. Dyer fails to see the evidence of the antagonism of the vegetative and reproductive forces as asserted to be the governing law according to Mr. T. Meehan's experiments, and lately quoted by the Rev. G. Henslow. If such barrenness were the case with its scandent habit, then *W. sinensis* would probably already be extinct.—*London Gardener's Magazine*.

[We have always to allow much for brief condensations of authors' papers; for if a short paragraph could perfectly convey an author's meaning, there would be no use in a long chapter. In the above instance Mr. Dyer's meaning has probably not been correctly rendered, for if one observer show that the manner of growth affects nutrition, and that when nutrition is affected fertility varies, it would be very absurd to infer that he believes nothing but systems of training would affect nutrition. In our climate we find "questions of temperature" affect nutrition just as much as "questions of training," so that granting the correctness of Mr. Dyer's observation, it is not easy to see what bearing it has on the other "evidence" which Mr. Dyer "fails to see." The logic is so weak that we prefer to believe that Mr. Dyer's points have not been clearly put in the above paragraph. A leading point in Mr. Meehan's communication to the Linnæan Society was to show that insects and cross-fertilization had nothing to do with the seeding of the *Wistaria*; and it seems to us that this note of Prof. Dyer's rather confirms than antagonizes this view. If the fruiting "may be a question of temperature," of course insects are "out in the cold" in the experiment.—ED. G. M.]

ATMOSPHERIC CURRENTS.—It is one of the misfortunes of meteorology, that authors with little knowledge of the related sciences are among its chief leaders. Just now a translation of a work by Professor Schouw, called "Earth, Plants and Man," is exciting attention in Europe.

It is a similar work to that of Marsh's "Man in Nature." According to the English translator, Schouw teaches that "Tracts destitute of woods become very strongly heated, the air above them ascends perpendicularly, and thus prevents the clouds from sinking;" and in this great principle we have a learned essay on what governments ought to do in the way of Forestry, and so on.

In this part of the world heated air always ascends perpendicularly whether it rises from tracts destitute of wood or otherwise; but the "preventing the clouds from sinking" is very funny when it is known to every gardener who has watched hot water circulate, that the hot "current" cannot rise without the cold current sinking and taking the place of the warmer by the return pipes to the boiler. Currents in the atmosphere are under precisely the same laws as currents in hot water pipes, and it is as sensible to talk of hot water preventing the cold water from sinking, as to say that warm air currents hold up the cold clouds above them. It is not to be wondered at that with such a dim perception of natural law the whole of the Professor's book amounts to little more than nonsense.

BOTANIC GARDEN ARRANGEMENTS.—A correspondent remarks: "What you say of Botanical Garden arrangements is true. I have seen leading 'Physic departments' connected with some of the leading Botanic gardens of Europe, and they are generally so ugly, that they are usually found near the back gates; and as for the necessity for having 'like near like' in a systematic arrangement on the grounds, he remarks "the flowers of *Nymphaea odorata* and *Magnolia grandiflora* might as well be not merely ten, twenty, or even two hundred feet as you might say, but as wide as the poles asunder for all that the observer could see of their relationship by ocular demonstration." For this knowledge he must receive aid from his standard text-book, and as we add, all he wants with his "arboretum" or his "Botanic Garden," is to have the plants so numbered and indexed that in a short time as possible, he can find what he needs for comparison. We are not sure the letter was intended for publication, but we have ventured to make these extracts, because we are glad of any encouragement in our idea of the absurdity of sacrificing beauty in Botanic Gardens to "the needs of science" that have no existence. It is the endeavor to carry out these absurdities which leads people to look on scientific culture

as something outside of the immediate wants of man, and on scientific men as eccentric oddities who are "well enough in their way," but in whose success they take little concern.

DERIVATION OF SEQUOIA.—Mr. Lemmon says in the *Pacific Rural Press*; "The generic name *Sequoia* was given by Endlicher because this genus is a lone follower (*sequi*, to follow) of vast colossal forests. By others said to be derived from 'Sequoya,' the celebrated Cherokee Indian; but this is no doubt an afterthought and unworthy to be kept up."

THE SMALLEST ORCHID KNOWN.—Baron Von Mueller has recently announced the rediscovery, after a lapse of twenty years, of a minute creeping orchid, highly remarkable for its extremely

small disk-like leaves. This little plant, which grows in the vicinity of Richmond river, East Australia, has been described as *Bolbophyllum minutissimum*. Its leaves are orbicular, sessile, flat, horizontal, on a creeping rhizome, and only one-eighth or one-sixth of an inch in diameter. Thus this orchid has the smallest leaves of all in the whole order. Indeed, on seeing the plant creeping among the mosses the observer might take it for a species of the *Hepaticæ*. The wee red flowers, which are produced singly on peduncles hardly longer than the leaves, measure only one sixth of an inch. While thus East Australia possesses the dwarfest of all orchids known to science, it counts among its plants also the one with the minutest flowers, namely, *Oberonia palmicola*.—*Scientific American*.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES.

BY JACQUES.

Why not have a department of the MONTHLY for "Notes and Queries?" The following may do for a commencement:

A fine large Marechal Neil Rose was sent to a lady this season, and proved so remarkably heavy that when it faded she had the curiosity to count the petals, and there were two hundred and eighty-two.

The *Contemporary Review* for April, 1879, quotes the *Journal of the Linnean Society*, Botany, Vol. XVII, No. 98, on the subject of carnivorous plants, and says: "The fed plants were able to produce nearly two and a-half as many seeds and nearly four times as great a weight of seeds as the unfed. In only one respect was the advantage on the side of the latter, the unfed being slightly taller, but only in the proportion of 99.9. Similar researches have been recently carried out in Germany, the only difference being that the plants fed on insects instead of roast meat, but with the same result

of proving the power of some plants to assimilate previously elaborated protoplasm with such advantage to themselves as to produce more and larger seeds and bigger roots." The entire article is highly interesting as well as instructive; it gives credit to our American observers, Canby, Curtis, and Mrs. Treat. If this notice seems to attract attention it is hoped the whole article may be reprinted, containing as it does the latest news on these interesting discoveries.

A gentleman known to us, who lately presented the Philadelphia Park with ten thousand evergreens, had the satisfaction of seeing a barbarian hitch his horse and deliberately proceed to fill his wagon with limbs of Hemlocks for the Easter holidays. Where was the patrol and Mr. Price?

Will some one tell us what Agassiz meant when he told the astonished citizens of Boston that "in a certain family of the *Radiates* every female always married her grandfather?"

When will botanists be able to inform us how it comes that if we plant half a field with sugarcane we shall produce sugar, and the other half planted with the olive will produce oil? There

was no sugar and no oil in the ground. Do not writers on Botany rather shirk the topic?

The attention of the Agricultural Department of the Government was called to the article which appeared in the MONTHLY on planting the Cork Oak. Can any one tell us if the acorns were planted?

DISTINGUISHING VARIETIES FOR PROTECTIVE LAWS.

BY MR. JACOB MOORE, MOUNT VERNON, ILLS.

I presume Mr. Eugene Glen is the author of the phrase "novelty entitling to protection," and if so to him must you look for the definition you require. Also I refer you to Downing's work "Fruit and Fruit Trees of America" for definition or descriptions of varieties. The long lists of synonyms that work contains prove conclusively that varieties can be and are identified. Doubtless it would be necessary to describe protected sorts as completely and minutely as possible, and in addition furnish a correct painting of the fruit, plant or flower, with outlines of various parts as might be deemed requisite. It is necessary to call attention to the fact that one feature of my system of protection is to give protective letters only for sorts sufficiently distinct to be identified, and to remind objectors that the system itself is in part only based on the patent laws. The word *exotic* in previous communication should be *existing*.

[Downing's works nor any work would describe novelties with the precision required for patent purposes; nor would they if accompanied by colored plates. These works are useful as approximate guides; they help us by indicating what any kind is not. If a person were to have a Rhode Island Greening Apple, and ignorant of its name, and search Downing, he might feel sure it is not Baldwin or Red Astrachan, or some hundreds of others, but out of the two thousand kinds described there he would come at last to a few dozen wherein the descriptions are so nearly alike that he nor any man could tell what it was; and the man who did decide the variety for him at least would be some one who had had personal experience with the fruit. Not even Mr. Downing with his vast knowledge would undertake to name a score of apples that he had never seen before from descriptions alone. These facts are so well known to experienced pomologists that we are compelled to look on the discussion about patents for fruits as so much waste paper. No Board of men at Washington

would undertake to decide questions of novelty involving legal claims on the best worded descriptions or drawings, unless they were of that class which the poet says will go

"Where angels fear to tread."

We have given more latitude than perhaps we ought to these discussions out of good feeling to our correspondents, but believing that no better suggestion than this of Mr. Moore can be offered, we must decline further articles on the subject. —ED. G. M.]

EDITORIAL NOTES.

A RARE CHANCE FOR FINE ORCHIDS.—It is a received maxim that money invested in Orchids is equal to a chance in a good gold mine. The larger they grow the more they are worth, as they increase but slowly under culture, and there are but few chances of getting stock but by the very expensive plan of sending collectors to tropical regions to hunt for them. The leading English nurserymen send collectors abroad especially to scrape up Orchids to supply the demands of customers. There is a chance now to prove whether the maxim is true in our country as in Europe, as we learn that the very fine collection of Mr. Geo. Howland, of Fishkill-on-the-Hudson, is for sale. We note some very rare species in the list before us.

SAM'L S. BOARDMAN.—We may supplement our note on Mr. Boardman's editorial career by saying what we did not know at the time of writing, that he is now attached to the *American Cultivator* of Boston, which, already among the leaders in the agricultural press, receives increased strength by this annex.

GEORGE HUSMANN.—This well known horticulturist who did so much to successfully introduce grape culture in Missouri, has recently been elected professor of Agriculture and Horticulture in the Missouri State Agricultural College, and has also been added to the editorial staff of *Colman's Rural World*.

ENTOMOLOGIST TO THE DEPARTMENT OF AGRICULTURE.—It is now said that Dr. Cyrus Thomas was offered but did not accept the office.

FRANZ KLABOCH.—Nephew of the celebrated Roezl, and one of the most enthusiastic collectors of seeds and living plants, and especially of Orchidaceous plants, died on the 17th of January at Oajaca in Mexico. It was his second visit to Mexico; on his first he discovered the double

Poinsetta pulcherrima, among other things now highly estimated in gardens.

PROF. REICHENBACH.—This distinguished botanist, author of the celebrated work the "Illustrated Flora of Germany," died on the 17th of March last, in the 87th year of his age. Prof. C. F. Reichenbach, known especially for his knowledge of Orchidaceæ, is his son.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, PART II., 1878.—From Robt. Manning, Secretary. The Report of the House Committee shows that new and scarce plants are in good demand. The curious and interesting tribe of Orchidaceæ are very well represented at the exhibitions. Forced Strawberries appeared last year on the tables in April, and those from cool frames, on the 25th of May. La Constante, a very old variety was the best strawberry exhibited during the season. The Committee deem it "capricious," many seasons being unfavorable to it. The seedlings of Col. Wilder, called Hero, and Abundant were regarded as promising. For successful Plum culture, "we would suggest to persons, if they have an enclosure in which fowls are confined, and the ground is suitable in other respects, to plant it with plum trees," and we will further not only "suggest," but positively say from actual observation of the facts, that if good healthy trees be all people care to have, the experiment will be eminently successful. A commendable feature of the Society, is the care the committees give to the examination of vegetables. Much discrimination is shown in testing and judging the value of varieties.

REPORT OF THE FRUIT GROWERS' ASSOCIATION OF THE PROVINCE OF ONTARIO, 1878.—D. W. Beadle, St. Catharines, Secretary. Dr. Burnett, in his annual address, believes that "the difficulties attending fruit growing are steadily on the increase." These difficulties, as we gather from the address, are chiefly "increase of insects," and the more frequent recurrence of late frosts than formerly. For the former of these, Dr. Burnett recommends "legislation," and for the latter, "fires in the orchard." The yellows in the Peach is becoming a troublesome disease in Canada. "It is spreading with fearful rapidity in Western New York." As a remedy the President proposes "good laws." The cause of the yellows he believes to come from "cold and being allowed to overbear." The increase of men and boys,

also enhances the difficulties of fruit growing, from their "thievish propensities." For this however, "legislation" is not recommended, but an increased effort to make fruit growing universal. In the United States, where fruit growing is universal, Dr. Burnett finds "a better and finer feeling to prevail." Dr. Burnett's address is more than usually interesting from its originality. He has the courage to express his own views freely; with these, people may or may not agree, but no one will read what he has to say without deriving great profit, if they are at all interested in fruit culture in the northern regions of our continent. The whole volume is full of very valuable matter to the same class of students.

SCRAPS AND QUERIES.

THE FUCHSIA ILLUSTRATION.—Mr. Grieves,



Fig. 2.



Fig. 1.



Fig. 3.

of the Greenbrook and Paterson Nurseries, desires us to say that if our correspondent will

look again at Mr. Cannel's picture, and the one in the GARDENER'S MONTHLY, he will see that they are not the same. The flower of Lucy Finnis, as given in Mr. Cannel's picture, is as in our Fig. 1, and we give a cut of the same in Fig. 2, of the natural size. Fig. 3, represents the flower as given in the GARDENER'S MONTHLY cut. It is really a variety called "Etty." The cut was made in New York, and was not intended so much to represent any one variety, as to illustrate the pretty habit of this class of Fuchsias.

MR. E. S. RAND.—Mr. Rand, as is well known, made a trip to Brazil, a couple of years ago, with the intention of returning in a few months, but he has concluded to remain there longer yet. He seems quite enraptured with the climate, and writing from Trinity says: "My plan was at first to remain only a few

months in Brazil, but I am every day more and more enchanted with this magnificent region, and I have little wish to come home. The climate is the loveliest and most healthy in the world; there are no extremes of heat and cold, the temperature is always just right; sometimes for weeks, night and day, the thermometer will not vary one degree from 76° Fah. There is no malaria, no insect pest, everything is always bright and green yet without excessive rain; there are no sultry days, no hot nights, no changes of temperature such as we have in the United States. I wish you could see the orchids, flowers and fruit by which I am surrounded. In a short time I go up the river some thousand miles, to near the Peruvian frontier, and hope to explore the Andean valleys which are said to be among the richest in floral wealth of any region in the world."

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

AMERICAN POMOLOGICAL SOCIETY.—As already noted, the seventeenth session of this society will be held in Rochester, commencing Wednesday, September 17th. At this writing, May 20th, Col. Wilder, the esteemed President, is so far recovered from his broken thigh as to be able to bear some weight on it, and has some hope of being able to be present personally, though his immediate friends hardly dare share the hope. Packages of fruit for the meeting should be addressed to care of James H. Kelley, Esq., Rochester, N. Y. The pomologists of Rochester, feeling the honor of the change from Nashville in favor of their city are leaving nothing undone to make the meeting one of the most popular that has ever occurred in the history of the Society, and from all accounts are succeeding well in their endeavors.

THE PENNSYLVANIA HORTICULTURAL SOCIETY.—This, the oldest existing society in the United States, are arranging for their annual

display to be held in their famous Hall, on Broad Street, in Philadelphia. It will commence on the 16th of September.

THE FOURTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION.—The annual meeting will this year be held at Cleveland, Ohio, commencing June 18th. The meetings of this association grow in interest yearly. It is composed of the leading men in the nursery trade, and who meet together to discuss matters connected with prosperity of their business, not only discussing mere trade matters, but those which may improve their own culture. Besides the usual matters of business it is expected that addresses will be made by Messrs. J. J. Harrison, G. W. Campbell, Jonathan Periam, W. C. Barry, Cyrus Thomas, John A. Warder, S. B. Parsons, P. Barry, N. Brown Smith, and Thomas Meehan. The railroads connecting with Cleveland have mostly reduced their rates, and the hotels are equally liberal. Those going from the East may get reduced railroad tickets by addressing T. S. Hubbard, Fredonia, N. Y.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

A respected correspondent thinks our remarks on lawns were not perfect. He believes it is a mistake to leave the mowings on the grass. It shades and weakens the finer grasses, and in this way assists the coarser ones that we should rather repress; and again he thinks we should have laid some stress on the necessity of an occasional weeding out of the larger and coarser weeds. For these hints we thank him, and have little to object to in his statement of them. It is pleasant to note the growing interest in lawns. Neat and well kept grass is amongst the best ornaments of a country home.

Early in June the hedges should have their first trimming. Successive seasons of observation have shown that the hint we threw out a few years ago in regard to the injury of early pruning hedges is correct. A young hedge of Osage, Honey Locust, or anything, should not be cut at all till it is two or three years old; not indeed till the shoots are one or even two inches thick. Then they should be cut even with the earth in the Winter time, and the following year they will throw up a luxurious mass of sprouts, which may be trimmed into shape the next June, and before the Fall we have a complete, perfect, impenetrable fence. Of course this and all other hedges should be trimmed so that the sides

slope from apex to base, in order that all the leaves may have as much light as possible.

Some people prune trees in Summer time, when pruning is desirable, instead of deferring it to the Winter season; and the practice has some advantages.

The Rose season reminds us to say that we are almost sorry they are so generally grown on their own roots, for it was such a nice employment for many people, not professional gardeners, to bud them on the Manetti stock. But the suckers from these wild stocks came up, and in time so weakened the grafted part, that it soon died. Florists would say that amateurs should keep the suckers cut away; but it is not easy for amateurs to distinguish one from the other. Yet we hope the pleasant practice of budding roses will not fall into disuse. Any hardy kind can be used for a stock, and one may have a dozen or more kinds on one plant in this way. In budding roses, or indeed in budding any kind of plant, strong healthy stocks should be selected, and above all, strong healthy buds. It is chiefly when weak stocks or weak buds are used, that failure follows. On a recent visit to Boston, we saw especial reason to refer to this matter of budding roses. A person was complaining that his fine English imported Roses—beautiful a few years ago, were "running out," and he doubted if the Boston climate was good for the rose; but we found the "running out"

merely meant that one half the plants were now nothing but the Manetti, on which the English now bud extensively. The stocks had out-grown the grafts.

Herbaceous plants are very liable to die out by untowards events in Winter or Summer. It is best to save a few seeds of the most desirable, so as to have a reserve chance should the old plant die. It is found by experience that many live in rock gardens under the partial shade of trees, better than in the full sunlight.

The time will soon come when the heat loving plants, such as coleus, alternanthera, and so forth, will be in their glory; and a pinching back a little at this season helps them wonderfully.

COMMUNICATIONS.

HOW TO TREAT EVERGREENS.

BY C. A. D., NEW YORK CITY.

I have read in a recent number of your interesting magazine, the statement of a writer who thinks it is necessary to take great care of the leading shoots of evergreens. He seems to regard the accidental breaking off of these shoots as a misfortune; and against this misfortune, he proposes that they should be guarded by lashing them to a stick sufficiently stiff to hold them firmly against wind and snow.

According to all my observations and experience of evergreens, this writer is mistaken. In fact, the only care which the leaders of evergreens require, is to cut them off every year or two; and if they are broken off by the wind or otherwise, the trouble of cutting them is saved.

Nature always provides that this sort of tree should grow vigorously upward, and all that the cultivator needs to do is to see that the branches are strong, vigorous and perfectly well furnished down to the ground. This is done by checking the upward growth. If the process is judiciously conducted, the result is a healthy, symmetrical and handsome tree. The Norway Spruce, the White Spruce, the Black Spruce, the Balsam Fir, the European Silver Fir, the White Pine, the Pitch Pine, in fact every variety of this class of conifers, can be made to attain their greatest perfection only by this sort of treatment. Cut off the leaders, pinch off the buds on the top branches, and while the tree will not grow so fast, it will be perfect.

[Few persons have had the experience which our esteemed correspondent has; and notes from his pen would be always acceptable.—ED. G. M.]

CARACANA ARBORESCENS.

BY J. M.

You have before called attention to the desirability of this shrub in collections, on account of its beauty when in flower.

A correspondent writing from Winnipeg, Manitoba, praises it for its extreme hardiness. He says in the past winter with a temperature of 45° below Zero, and the snow blown from the trees, young plants of it were entirely uninjured. In this part of Pennsylvania, it is in full bloom early in May. I saw a bush about three feet high covered with its deep yellow pea-shaped blossoms.

THE ARRANGEMENT OF LAWNS.

BY ROBT. J. SIDDALL, GERMANTOWN, PA.

(Read before the Germantown Horticultural Society.)

A lawn, in order to fulfil its proper use of beautifying a place, must be well made at first, and, thereafter, kept in perfect order. While it should have a fair allowance of trees and shrubs, it must not be overcrowded with them, nor be hid from public view by a high wall or fence, nor by a close hedge. With the many fine country seats around the city, it is astonishing how few meet with these requirements. The house will be built where it will show to the best advantage, and the material used for the front will be of better quality than the rest; and then the grounds will be planted thickly, and perhaps a close hedge placed in front, as if in a vain endeavor to hide from the tax collector. This is sometimes carried to such excess that there is merely a suggestion of a dwelling, but whether a log hut or a palace is unknown except to acquaintances, tramps, and the ubiquitous assessors.

In making a lawn, either sod or a good mixture of grass seed can be used. The former is best when an immediate finish is desired, and though it is necessary when making a terrace, or where there is a liability to wash with heavy rains, yet in covering a large surface the cost is a decided objection to its use. It has been said there is more risk from the weeds being introduced than if the ground is seeded; but this has no weight, as clean sod should be selected and it is then no more subject to weeds than if raised from seed. It can be planted whenever it is in good grow-

ing condition, except in very dry weather; after being well pounded it will need no further care, besides cutting and rolling.

Grass seed may be sown any time from April to October, avoiding very dry weather. Before sowing it should be well mixed with earth or coal ashes, previously passed through a fine sieve and then made slightly damp. From three to five bushels of seed will be required to an acre. After planting, rake lightly and roll thoroughly. The cost is much less than for sodding, and it will be quite as satisfactory in its results.

It is usual to mix with the seed either oats or rye, especially in the Summer months, so that the grain shall protect what is supposed to be the weaker growing grass. It would be as reasonable to plant corn to protect the grain. In practice, the grass seed will be quite able to take care of itself, and if well rolled will soon make a good sod.

Whether to be sown or sodded, the ground should be first properly graded, manured well, dug or ploughed, and raked smooth. Whenever any hollows are found they should be filled in with a light soil, sowed with grass seed and then rolled.

Lawn grass should always be cut before it appears to need it. The cuttings are then too short to rake, and will make a dressing for the sod which will be a decided benefit to it. The mower cannot be used too frequently, from early in the Spring until the last thing in the Fall; in fact, whenever the ground is not frozen, it should be used at least once every week. The roller should also often be used, especially in the Spring as soon as the frost is out of the ground, and again after heavy rains. The grass should be trimmed occasionally around the trees and bushes, and along the edges of paths and flower beds, and wherever the mower will not reach. The ordinary sheep shears is a handy tool for this purpose.

It is a false idea that frequent cutting is expensive. Besides being the only way to maintain a perfect lawn, it will be found to be the cheapest in the end. The aggregate labor and time required to cut every week in ordinary weather, and twice a week when the grass is growing luxuriantly in warm, wet seasons, will be less than when cut every three or four weeks. In the former case, after going over the ground with the mower, the work is finished, and with very little labor; in the latter, the grass must be repeatedly cut and raked alternately until an even

cut is obtained, and it will not then have a good appearance. The lawn should never need touching with a rake after the first cleaning in the Spring. If the cuttings are ever long enough to gather with a rake, it is certain that the work was not done at the proper time.

Of whatever pattern selected, a lawn mower must be light enough to handle easily, and be able to cut within a few inches of trees and other objects. The ability to cut long grass, claimed for some machines, is of doubtful advantage, as it encourages neglect. If the lower blade is kept well up, so as to just touch the revolving knives, it will keep itself sharp, and be in as good order at the end of the season as at the beginning, and will never require grinding. They should be used to cut not more than two-thirds of their width, and there will then be no unsightly lines of uncut grass. With a little management they will cut on terraces of any slope as well as on a level surface. For cutting weeds there should be a suitable knife, with a sheath attached to the handle of the machine.

Weeds are all unsightly, and yet some will appear in the best kept lawns. Among the most troublesome ones, are the sorrel and wild violet. All kinds should be pulled out whenever seen; it is generally sufficient to cut the root just below the surface of the ground. Sorrel is a very difficult weed to get rid of on account of its underground spreading branches. The violet, when it once obtains a foothold, is exceedingly annoying, and can only be exterminated by constant attention. If overlooked for one season, the ground will be filled with seed, not from its blue flowers, but from inconspicuous ones matured underground. The fall grass with its long creeping stems, is sometimes considered as a weed. It can only be managed by treating it as grass, mowing it frequently and keeping the rake from it. It is at its best when other grasses are burned out with the hot Summer sun, and often gives the lawn a bright green appearance which it would not have without it. When garlic is once introduced it is impossible to eradicate it, but as it is very similar to grass in its color and style of growth, it can scarcely be considered as an objectionable weed. Moles in a lawn are as bad as the most obnoxious weed, and should not be tolerated. Being exclusively insectivorous it is supposed to be wrong to destroy them. They can be caught with a little patience, and, if it is really desirable to keep them alive, they can be sent to the Zoological Garden, or to the Society

for the Prevention of Cruelty to Animals. Do not hit them on the nose with a stick, or they will surely die.

Wherever a tree or a shrub can be planted it is customary to put one in, and it has not always a happy effect. Even while the trees are small the lawn is overcrowded; and as they grow, this becomes worse, until it is thought necessary to butcher some of them, and frequently they all share the same fate and are shorn of their limbs until they show the form of some of the letters of the alphabet. The appearance of a lawn is thus disfigured for years, when it would have been at once improved by entirely removing a sufficient number of trees and leaving the others untouched. A better plan of planting would be—wherever a tree can be omitted, leave it out. The nurseryman might dispose of fewer stock, but there would be a greater number of sightly lawns, and many more handsome trees than are now to be seen. Probably the best planted place in this neighborhood, is that of Mr. Redwood Warner, on School lane. The dwelling stands at a considerable distance back, and there is an unobstructed view of it from the road, over a long stretch of a most beautiful and well-kept lawn. But even here the effect is slightly marred by a few trees badly situated, which suggest the thought that they were left over after the planting was finished, and were put there out of place rather than be thrown away.

How a fine lawn may be abused by neglect and ignorance, is well shown in Independence Square; it was sodded at a great expense, and for the first year it was really handsome, being frequently cut, which at that time was all it needed. Since then it has been gradually getting worse, and bids fair to again become a disgrace to those having it in charge. The money spent on it should have sufficed to keep it in perfect order. The edgings are seldom, if ever trimmed; and the ground is uneven, being full of hollows and hillocks which render it impossible to cut the grass well; and bare spots of earth are interspersed with long tufts of grass which no machine can cut. With the labor which has been expended on it, there should have been a surface perfectly covered with good, smooth, velvety sod.

Manures are as much benefit to grass as to any other plant. After planting of course they can only be used as a top-dressing. Ground bones decompose slowly, and their effect though lasting, is not shown immediately. Slaked lime in

fine powder has a tendency to destroy the moss which sometimes appears among the grass. Bones and lime may be used at any season. Guano and other similar concentrated manures should be applied in wet weather; at other times they are hurtful. Liquid manures, used while the grass is growing, is an excellent fertilizer. In the Fall a top-dressing of stable manure may be used, to be raked off early in the following Spring. Always bear in mind, that being entirely ornamental, a lawn is made to be admired; to deserve this admiration it must be well kept; to receive it, it must be seen. Therefore, abandon front hedges and heavy fencing; cut and roll frequently, and after the first Spring cleaning abolish the rake; avoid excessive planting of trees, shrubs or flower-beds; if a tree needs extensive pruning, cut it down at once, and in every possible way encourage the grass and discourage the weeds. The lawn will then give pleasure to all who see it.

EDITORIAL NOTES

THE RED MAPLE.—The Red Maple has been in use for ornamenting grounds for many years; but not to the extent that its beauty and general adaptability claim for it; but its merits are asserting themselves. A beautiful avenue was planted with them in Fairmount Park last Spring, and a correspondent of the *London Garden*, points out how beautiful are the few specimens in Kew Gardens, and the great beauty a wider use of them would give to an English landscape.

ADDITIONAL NOTE ON THE TREE ALPHABET.—Jonathan Rees, Phoenixville, Pa., writes that "it might be well to substitute other things for Dogwood, Sassafras, and Juniper, if others could be had to do as universally well with the same initials."

PRUNUS TRILOBA.—The double variety of this Japan plant is now becoming common under culture. The flower is ephemerous, but beautiful while it lasts, being a good companion to the double Almond. It is liable to the same disease as the last named plant; whole branches die in a night, like the "Fire blight" in the Pear.

THE DOUBLE CHINESE CHERRY.—This proves a valuable companion to the old pure white kind. The flowers are very large, and of a rosy pink when opening, becoming white at maturity.

PROPAGATING MISTLETOE.—There seems to be no difficulty about this when there is not too

much trouble taken. A correspondent of the *London Gardener's Chronicle* thus describes how he does it: "In February last I sowed some seeds on three-year-old Mountain Ash in nursery lines, my plan being to rub the berry on a smooth part of the stock about two or three feet from the ground, till almost all the viscid matter was removed from the stone, leaving only as much as would cause the stone to adhere to the stock. On examining them in June I found about seventy per cent. had taken, each stone having produced a protuberance from each end, which was firmly fixed in the bark. They continued so till November, early in which month I left the district, but at that time all seemed as if ready to burst into activity at the first opportunity. The experiment was made on the east coast of Scotland, not more than half a mile from salt water, in a sheltered locality."

A LATE MAGNOLIA.—*Magnolia hypoleuca* has been mentioned and commended more than once, for many noteworthy qualities. It is late, blooming in mid-June, creamy-white like conspicuous, and moreover, of a scent so sweet that for the want of a truer comparison, I will liken it to the combined odor of strawberries and bananas. I know of no magnolia so delicious, unless it be the tender *M. fuscata*. Now all this is a great deal for a single species to possess in the way of delightful qualities. But nature seems disposed to give even more, for the foliage of *M. hypoleuca* is simply exquisite. I refer more especially to the young leaves, although the older leaves have fine red stems and glossy green on their broad surfaces. But the young leaves with thinner, more delicate texture, show this red in the veinings and even farther throughout the general green to the extent of a faint tint or tone. The result is a suffusion of most delicate purples lined out with red veins. Held up against strong sunlight the effect is greatly enhanced by the translucent character of the leaf. Portions of the foliage in ordinary lights thus assume a curious bronze color, as a result of the mingling of shades, and the distinct white of the under side makes the appearance still more remarkable. I dwell particularly on the foliage of this new and rare magnolia that I may enter a plea for the beauty of leaves generally. Flowers are so valued and set above mere foliage, that the latter, though in many cases quite as exquisite, receives scant justice.—*Samuel Parsons in Rural New Yorker.*

EUROPEAN BEDDING PLANTS.—The *Gardener's Weekly*, gives the following as the most popular bedding plants in the London Park.

<i>Alternanthera spathulata</i> ,	<i>Geranium Robert Fish</i> ,
<i>paronychioides</i> ,	Daybreak,
major,	Master Christine,
amœna,	Elegantissima,
spectabilis,	Rose Bradwardine,
magnifica,	Little Golden Christine,
versicolor,	Golden Pyrethrum,
amabilis latifolia,	<i>Helichrysum maritimum</i> ,
<i>Achyrocline Saundersi</i> ,	<i>Iresine Lindeni</i> ,
<i>Agathe celestis</i> ,	Herbstii,
<i>Ajuga reptans rubra</i> ,	<i>Kleinia repens</i> ,
<i>Ageratum Imperial Dwarf</i> ,	<i>Leucophyton Browni</i> ,
<i>Achillea umbellata</i> ,	<i>Lobelia speciosa</i> ,
<i>Cineraria acanthæfolia</i> ,	Blue King,
<i>maritima compacta</i> ,	Stonei,
<i>asplenifolia</i> ,	Bonnet,
<i>Convolvulus mauritanicus</i> ,	Omen,
minor,	White Perfection,
<i>Centaurea gymnocarpa</i> ,	Porcelain Brilliant,
<i>ragusina compacta</i> ,	Mazarine Gem,
<i>Campanula turbinata hybrida</i> ,	<i>pumila grandiflora</i> ,
<i>Chamaepeuce diacantha</i> ,	<i>Oxalis corniculata rubra</i> ,
<i>Cerastium tomentosum</i> ,	<i>Pachyphyton bracteosum</i> ,
<i>Coleus Verschaffelti splendens</i> ,	<i>Stellaria graninea aurca</i> ,
<i>Dactylis glomerata elegantissima</i> ,	<i>Sempervivum montanum</i> ,
<i>Echeveria secunda glauca</i> ,	<i>arachnoideum</i> ,
metallica	<i>Senecio argenteus</i> ,
<i>glauca metallica</i> ,	incanus,
<i>Fuchsia Golden Fleece</i> ,	<i>Tenarium Polium</i> ,
<i>Funkia undulata</i> ,	<i>Tagetes signata pumila</i> ,
<i>Gazania splendens</i> ,	<i>Viola lutea major</i> ,
<i>Gnaphalium lanatum</i> ,	Purple Queen,
<i>tommentosum</i> .	<i>Verbena Purple King</i> ,
	Sportsman.

LIST OF ANNUALS EMPLOYED.

<i>Amaranthus melancholicus rug-</i>	<i>Godetia</i>
<i>ber</i> ,	<i>Lupinus nanus</i> ,
<i>Atriplex hortensis</i>	Marigold (French miniature)
<i>Asperula azurea setosa</i> ,	<i>Malope grandiflora</i> ,
<i>Alonsoa Warscewiczii compacta</i> ,	<i>Nasturtium</i> ,
<i>ta</i> ,	<i>Nemesia compacta</i> ,
<i>Alyssum maritimum</i> ,	<i>Nemophila compacta</i> ,
<i>Bartonia aurea</i> ,	<i>Petunia</i> ,
<i>Clarkia alba</i> ,	<i>Phlox Drummondii</i> ,
<i>Clintonia pulchella</i> ,	<i>Saponaria calabrica</i> ,
<i>Celosia Huttoni</i> ,	<i>Senecio</i> ,
<i>Eschscholtzia crocea</i> ,	<i>Viscaria</i> .

THE DEUTZIAS.—The Deutzias in nurseries are not well understood; the following from the *American Agriculturist*, is timely, and will help to clear up the confusion:

"The various Deutzias are among my favorite flowering shrubs; I have endeavored to procure all the species and varieties offered by our nurserymen, and the labels said that I had them all. I noticed that there was a close similarity between my *D. scabra* and *D. crenata*, but gave them no close examination, until a note in Gray's *Garden Botany*, to the effect that *D. crenata* was generally cultivated as *D. scabra*, induced me to look at them more closely, when I found that

all the difference between the two was in the labels, and that I had no *D. scabra*. I then ordered from some half a dozen different nurseries, plants of *D. scabra*; they came into bloom this Spring, and every one is *D. crenata*. It is very doubtful if *D. scabra* is in any of our nurseries; at any rate, if the real thing is to be had, I should like to know it. According to the engravings in Siebold and Zuccarini's *Flora of Japan*, *D. scabra* has narrower and much rougher leaves than *D. crenata*, but the marked distinction is in the stamens; in the former (*scabra*) the filament, or stalk portion of the stamen, is broadest below, and tapers upwards, while in the other the filament is broadest above, with two blunt lobes just below the anther. This is by no means the only case which a plant has been sent out year after year under a wrong name, and cultivators abroad frequently complain that it is impossible to find certain plants in the trade, as some other has been, no doubt accidentally, substituted, and the error propagated not only from nursery to nursery, but from

one country to another. Now that *Deutzias* are the topic, let me remind you that too much cannot be said in favor of the slender one, *Deutzia gracilis*, as it is far from being generally known. It is seldom higher than two feet, forms a handsome clump with gracefully recurved branches, and in June is covered with flowers as white as snow-flakes. I sometimes think if this, and many other choice shrubs, were fitted with some easy-going English name, it would do much to popularize them. It is a choice shrub for any garden, and is admirably suited for cemetery planting. Our florists know its value for forcing, and it is one of the hardy things that may be forced without a greenhouse. When frost has checked the growth, the plants may be taken up and potted: keep them in a cool cellar or frame until February, then bring them to a sunny window, and they will come forward, if not so rapidly as in a greenhouse, quite satisfactorily. It is easily propagated from cuttings, or from the suckers which it produces in abundance."

GREEN HOUSE AND HOUSE GARDENING.

COMMUNICATIONS.

BOTTOM HEAT.

BY F. W. POPPEY, ORANGE, NEW JERSEY.

This term in common practice is only made use of in those cases, where the temperature of the soil in which the plants grow, is artificially raised above that which we find naturally in it, and there seems to prevail a general idea, that such an artificial elevation of temperature is only necessary in a few special instances. How erroneous this idea however is, may be seen in the fact that the mean temperature of that part of the soil in which plants grow, is universally somewhat higher than the air surrounding them. It is however not the special degree of bottom heat, which plants require so much at certain periods, but a correct and corresponding proportion of the temperature of the soil, to that of the atmosphere and the intensity of light. It is therefore to be presumed, that we might and

perhaps ought, to give more heat to the roots of plants, we cultivate here in America, than is necessary to the same in Europe, as we have more light and sunshine, than they have there. Both forcing, and the cultivation of tropical plants and fruit are therefore greatly facilitated, and it is the more to be wondered at, that our people, even the rich, buy and eat that poor stuff sold in our markets, as pineapples, bananas, guavas, &c., and that forced strawberries are yet too expensive for both producer and consumer, since we have not learned to grow them except in pots, and therefore figure on some tables as a mere show. Graperies and fruit houses might be got up cheaper and be managed at less expense than they are, and made to produce better peaches, apricots, plums, and above all cherries, out of their season, of a quality and at prices, both unknown even to the wealthy in this country.

We still read in the, perhaps too numerous and expensive books on horticultural and agri-

cultural subjects a good deal of nonsense regarding the soil, which this or that plant is said to prefer or actually demand for its well-being; whilst for more than forty years ago it has been proved, that it is not the chemical or mineralogical composition, but the combination of moisture and temperature of the soil which constitutes the principal condition of vegetation. It may be considered an axiom in horticulture, that all plants require the soil as well as the atmosphere in which they grow, to correspond in temperature with that of the country of which they are natives. It is for the want of sufficient bottom heat, that some grape vines do not set their fruit well; that tropical palms and other plants, where it is impracticable to heat the soil in which they grow, soon become unhealthy and that some get covered with a black mould, as orange trees, myrtles, eupatorium, veronicas and many others, which we meet with in our so-called conservatories, but which are not cultivated in them, living barely through the Winter until planted out, when our Summer, with the heated soil comes to their relief. To what extent the soil to the depth of about one foot is heated, in the different parts of the world we can only form an unsatisfactory idea, since so few actual measurements have been made, and as yet none at all have been made in the United States; though we have an agricultural department in our government, with a full complement of well-paid employés.

We know, however, that seeds of tropical plants will not germinate even, unless the soil is permanently heated to at least 75° F. That whilst in Nova Zembla the soil was not warmed above 34½° F. with *Ranunculus nivalis* and *Oxyria reniformis* in bloom, and in Takutzsk, wheat, rye, cabbage, turnips, radishes and potatoes were cultivated, though the soil never thawed to more than about three feet, and in the garden of the Royal Horticultural Society, London, the heat of the soil varied between 37° and 66° during a twelvemonth, Sir John Herschel in a bulb garden, at the Cape of Good Hope, observed it to be 159°. In Egypt it is from 133° to 144°, and according to Humboldt, in the tropics from 126° to 134°, in some places 140°. In Chili 113° to 118°. Bermuda 142°. And in France 118° to 122° even as high as 127°. The Orange tree is only found in perfection where the heat in the soil rises to 85° and never falls below 58°.

The real difficulty with regard to bottom heat has been, not so much the necessity of it, but

the manner of obtaining and applying it. Tanks have proved too damp, pipes too dry, dung and bark constantly subject to excess and defect. But as long as we cultivate our plants in pots only, which are surrounded by a sufficiently high temperature of the atmosphere, one will have little difficulty in supplying the necessary heat to the roots; but as long as our present means and mode of heating do not give to the plants the necessary, and, according to circumstances, carefully to be regulated bottom heat, together with the requisite moisture, our in-door gardening will remain an undeveloped and unsatisfactory proceeding. It is therefore not to be wondered at that so little interest is shown in it by our wealthy people. Let gardeners, rather than learn how to grow orchids or to milk a cow, learn to understand and apply the principles and explanations of science, to the routine of horticultural practice, and it cannot fail that the intelligent will take a more lively and active interest in that beautiful art, which seems now to have dwindled down to the mere production of a few kinds of flowers, about as easily produced as weeds.

[We commend strongly the main point of Mr. Poppey's communication, which is that too few gardeners take an intelligent interest in their profession. We know the general answer to be that there is little inducement; that gardeners are too poorly paid, and therefore they abandon the field to mere laborers who seem to monopolize the term "gardener." It is true that many worthy men do not find the place for which they are eminently fitted, and that miserable fellows occupy positions better men should fill; but this is no more true of horticulture than of many, nay of all other professions. It does not hurt any gardener to know something of the more intelligent subjects connected with his profession. There is a pleasure in knowledge for its own sake, independently of any money that may accrue from it possession; and the intelligent gardener has at least an equal chance in the race for good positions as the dolt. There are continually places; well paid places, open for intelligent persons; and though the wrong person often gets into the right place, we know that it is not always so.—ED. G. M.]

ABOUT POTTING.

BY E. P. P.

It is curious that flower lovers should so often lack the potting instinct. A neighbor brought

me a pot of Dwarf Ageratum, complaining that it had stood all Winter without growth. I examined the dish in which it was planted and found it without any drainage; then I turned out the soil and found two large lumps each as large as my fist of rank raw cow manure half filling the pot or earthen dish. The water had settled into this vile stuff where the roots absolutely refused to travel. The poor plant had squatted on top of the dirt and waited for better times. I gave it a respectable pot, good drainage and proper soil, and it has already smiled up its thanks in the way of charming blue blossoms and rapidly growing leaves. The good lady who owned it had succeeded easily with rank eating geraniums; and supposed all plants would endure the same outrages.

Much more is dependent on proper soil than is generally supposed. This is more true of foliage than of flowers; and foliage is half at least of plant beauty. All plants are foliage plants by good rights, and should be grown as such. A friend wished me to look at his Begonias and prescribe for them. I found them in rich barnyard compost; of course the leaves were blistered and the plants dying. I found near his house, an old apple-tree hollowed in the side, and an abundance of decayed lumps and rotted wood. A few half-decayed lumps for drainage, and the plants set in the wood dirt mixed with a little sand and they soon showed vitality.

Another mistake in potting is the use of these immense crocks that hold a gallon or more. Four to six-inch pots will suffice for nearly all that should find a place in a window or small conservatory. A plant will do very little upward work until it has done below; it wishes to touch the pot with roots on all sides first of all, for this reason your plants will absolutely die in a too large crock. I have just dumped a rose, a very large Lamarque which I had shifted into a twelve-inch pot, but which grew sickly in spite of all attention. I found the roots nestled in the centre of the soil, while the outer roots had perished in the vain attempt to fill the space allotted them. It was a five-year-old smothered in his grandfather's overcoat. The poor son now enjoys a five-inch pot.

Another error is to avoid too frequent repotting. For instance the Hoya or Wax Plant should not be disturbed for years. I have one that grew over one hundred clusters in Spring that has not been shifted for nine years. It is simply set very high up in the conservatory,

and kept well supplied with water. The drainage must be excellent. Begonias, Azaleas, Camellias, do not like to be often disturbed.

Let the plant grower be sure to have his soils well composted and rotted before using. For the large majority of plants, good garden soil is sufficient.

EDITORIAL NOTES.

DARLINGTONIA CALIFORNICA.—This now famous American plant plays an important part in the frontispiece to Linden's new catalogue. He seems to grow it under a huge bell glass, thereby retaining for it a moist atmosphere, and it might have been for this purpose that the water pitchers were formed, as much as for the purpose of catching insects for food.

AMMONIA FOR FLOWERS.—A lady correspondent of the *Country Gentleman* does well in reminding window flower growers of an old but nearly forgotten fact, that a few drops of harts-horn in the water given to plants is an excellent fertilizer. It is worth all other "concentrated" manures for this purpose.

PERENNIAL MIGNONETTE.—That the Mignonette is truly a perennial plant, is forgotten by those who grow it every where from seed. The following from the *London Garden* is an index of its true perennial character:

"The common garden Mignonette is now flowering freely on the vertical face of a wall on which it is established in the Garden of Plants, Paris, and no doubt it is established in various similar positions elsewhere. In such a situation it becomes perennial, but the flowers are not so fine as when grown in rich ground."

DAPHNES FOR WINDOW CULTURE.—The *Gardener's Chronicle* says: "Few plants are more worthy of culture for conservatory decoration during the winter months than *Daphne indica rubra*. The glossy green foliage and rich rosy flowers are alike attractive; but the chief claim of this plant to notice is its powerful and delightful perfume. The flowers are also remarkable for their lasting quality, continuing fresh and enjoyable for three months. Small plants in four and five-inch pots are particularly valuable for various purposes of decoration in rooms and greenhouses during the months of December, January, and February. This variety is not only the best in color, but is the most

free in growth of the somewhat slow-growing section of the genus to which it belongs.

POPULAR BOUQUET FLOWERS.—Speaking of a Royal marriage last Spring, the *London Gardener's Chronicle* gives the following details, which may serve to show of what flowers the most "Royal" bouquets are made in the Old World at the present time: "There were also fifty bouquets of choice white flowers—*Eucharis*, *Spiræas*, *Camellias*, *Lily of the Valley*, &c.—surmounting pyramidal stands two feet high of the confectioner's delicacies; the whole combining to make up such a floral feast as is seldom seen. The banquet to the Ambassadors, &c., was served in St. George's Hall. Here larger plants were used, including *Azaleas*, *Begonias*, *Areças*, *Sabals*, *Dæmonorops*, &c., in all twenty pairs, and fifty bouquets similar to those before-named, but with the flowers of various colors. The bride's bouquet was, by special permission, presented by Messrs. James Veitch & Sons, of Chelsea; and Her Majesty and the Crown Princess of Germany accepted bouquets from the same firm, while Mr. John Wills had the honor of presenting a bouquet to Her Majesty the Queen of the Belgians. Mr. Jones provided bouquets for the other Royal and distinguished visitors, and these were made up with *Gardenias*, *Eucharis*, *Lily of the Valley*, white *Camellias*, *Roses*, *Bouvardias*, *Orchids*, &c. We are pleased to hear that Mr. Jones has since received, through the Lord Steward of Her Majesty's household, a letter expressing the Sovereign's entire satisfaction with the whole of the decorations and arrangements carried out in the department under his charge."

NEW OR RARE PLANTS

DOUBLE-FLOWED IVY-LEAVED PELARGONIUMS.—The introduction of M. Liebmann's double-flowered form of the Ivy-leaved *Pelargonium*, *König Albert*, some few years ago was a pleasant surprise, being the commencement of a new class of highly ornamental plants which are exceedingly suitable for the decoration of the conservatory and also for cut flowers. The elegant and chaste forms of the single-flowered varieties of the Ivy-leaved *Pelargonium* bear no comparison in point of appearance with the new double-flowered varieties for which we are mostly indebted to that very skillful hybridist, M. Lemoine, of Nancy. These new double-

flowered varieties all belong to the true peltatum or trailing species, and are of various shades of color, from almost pure white to dark lilac. The following received first-class certificates:

A. F. Barron (Lemoine).—Flowers large and very double, of a pale rosy-lilac color, with dark veins on the upper petals; produces a large truss. A very fine variety. Flowers of the largest and finest forms.

Elfrida (Ebert).—Flowers large; dark lilac, shaded with purple; of fine form. Trusses of medium size. Very free flowering. A pleasing lively-colored variety.

Lucie Lemoine (Lemoine).—Flowers large; rather loose; of a very pale lilac color, with dark veins on the upper petals. Free flowering.

Mademoiselle Adrienne Barat (Lemoine).—Flowers large and very double, pale lilac. Very free flowering and fine habit.

Sarah Bernhardt (Lemoine).—Flowers almost white, the upper petals veined and tinged with lilac. Free flowering. Robust growth.

Viscountess Cranbrook (Lemoine).—Flowers large and full, white, shaded with rosy-lilac color. A pretty variety. Free flowering.

Classification of varieties according to color.

Flowers White or very Pale Lilac.—*Lucie Lemoine*, *Madame Emille Galle*, *Sarah Bernhardt*, *Renoncle*, and *Viscountess Cranbrook*.

Flowers Pale Lilac.—*A. F. Barron*, *a L Fiancée*, and *Mademoiselle Adrienne Barat*.

Flowers Dark Lilac.—*Elfrida*, *Madame Perle*, and *König Albert*.—*Royal Horticultural Society's Journal*.

NEW ABUTILONS.—The *Gardener's Chronicle* says:

"The dwarf habit and free-flowering character possessed by the newer *Abutilons*, render them very useful for various decorative purposes. One of the most attractive varieties combining beauty of foliage with a profusion of flowers, is *A. tessellatum Darwinii*. The foliage is richly marked and is of itself highly ornamental, and flowers are freely produced when the plants are only a few inches high. This *Abutilon* will prove valuable for stove decoration during the Winter, and for greenhouse, conservatory, and flower garden ornamentation during the Summer. It strikes readily, grows freely, and flowers profusely at all periods of the year."

GLOXINIA CRASSIFOLA GRANDIFLORA.—A strain of *Gloxinia*, quite distinct. The leaves which are very broad and fleshy, recurve so as to

almost cover the pot; the flowers, which are much larger than in the old sorts, are of very rich shades of color and fine form. By sowing on a gentle hotbed in January and February, they may be had in bloom in the following Autumn, and seedling plants always yield much the finest blooms.—*Gardener's Chronicle*.

DRACÆNA ELEGANTISSIMA.—There are few things so useful for room decoration, or for any

Son, and was exhibited by them in 1875. This is a dark colored variety, with narrow undulated leaves, and of dense habit. The leaves are of a deep bronze with a metallic lustre, and very distinctly margined with bright crimson; in the young leaves crimson of a lighter shade entirely predominates, the bright coloring giving the plant a glowing and attractive aspect. It is one of the best of the narrow-leaved Dracænas.



DRACÆNA ELEGANTISSIMA.

kind of decoration where there are strong architectural surroundings as the various kinds of Dragon's Blood plants, or Dracænas. These are of many varied forms; some being characterized by a few broad metal-like leaves, and others by narrow ones, and these again varied by many tints, spots and stripes of various colors. The one we now have is not absolutely new, having been introduced to public notice by the celebrated English firm of James Veitch and

SCRAPS AND QUERIES.

GLOXINIA DISEASE.—"Waverly," Baltimore Co., Md., writes: "I have for several years with much pleasure and satisfaction cultivated the Gloxinia. The bloom of a good collection of these plants has a charm so peculiar and an abundance of flowers of such variety of color and form, and comes at a season when the green-

house would without them be comparatively uninteresting, that I would solicit a good word for them in your valuable magazine. Their culture up to this season seemed to me simple and easy, but I have now a disease in some seedlings that puzzles me very much. The house I grow them in is kept at a temperature of from 50° to 70°, and the soil I use is leaf mould and rotten manure with some sand. The disease first makes its appearance by a curling of the leaf; soon after the under side of the leaf gets to a waxy transparency, and the leaf soon after damps off. This always appears first on the lower leaves. Will you kindly shed some light on the subject? I send with this a plant affected in this way. It is a seedling from seed sown last September."

[There are two causes operating to render Gloxinia and Achimenes unsuccessful, namely: the attacks of a small, narrow black insect known as the thrip, and a fungoid attack similar to and perhaps the same as the well known black rust in the Verbena. These troubles have prevailed so extensively that these beautiful Summer-blooming plants have almost disappeared from cultivation. In a recent visit to the greenhouses of the veteran florist, Robert Buist, Sr., we were delighted with an old-time display of these plants in perfect health, with the additional charm of novel and beautiful shades of color. Some beautifully spotted and pencilled, others mottled and edged in curious ways. Talking on this subject of disease and insect attacks, Mr. Buist expressed his opinion that when the temperature was kept at about 70°, and the atmosphere moist, with a partially shaded greenhouse to grow the plants in, they were always free from these pests. The opinion of this still active octogenarian, derived from so many years of successful experience, must be of great value to those who fail with these extremely beautiful plants.—ED. G. M.]

AGAPANTHUS UMBELLATUS.—S. B. B., Warrenton, Va. The blue flower sent belongs to this plant. It was once a very popular plant under culture, but has become scarce, much more so than it deserves to be.

ABUTILON DARWINI.—M. S., Pittsburg, Pa., asks: "Is the Abutilon Darwini noticed in the last MONTHLY new? I never heard of it before. It should be worth growing by what you say of it."

[It is not exactly new, and ought to be well known. Looking through a catalogue of Peter Henderson's, now three years old, we find the fol-

lowing account of it, which we give here, as it seems to be yet so much "unknown:?" "Entirely distinct, the flowers a deep orange scarlet color, veined with pink, opening like a parasol, making it unlike all other sorts of Abutilons, in which the flowers are bell-shaped. The flowers also are thrown well out beyond the foliage. This peculiarity of opening out makes it valuable for bouquets, and being a most abundant bloomer, is well suited for winter flowering."—ED. G. M.]

VARIEGATED ALOE.—S. B. B., Warrenton, Va., says: "I have an Agave which is quite a curiosity. It was last season a large plant of A. Americana var. For some reason the bud died; it made a new one in a short time, but instead of being variegated it was green. It continued dropping its leaves until the whole plant was of the common variety."

[It is not uncommon for variegated varieties of plants to return to their normal green condition. This is particularly the case with the Japan Euonymus. It is rare in the Mexican Aloes or Agaves.—ED. G. M.]

BLOOMING OF WINDOW FLOWERS.—Miss W., Phila., says: "There has been a question submitted to me, viz., 'Why do plants bloom better when pot-bound?' I have looked in a number of books but have not been able to find an answer. I should be greatly obliged to you for an answer."

[It has recently been strongly brought out in some scientific papers that there is a certain amount of antagonism between mere vegetative or growth force, of which we may take the leaves and stems as the representative, and reproductive force which is inaugurated by the production of flowers. In popular language this may be rendered:—partially starving an otherwise healthy plant favors its flowering. A pot-bound plant is in this condition, and hence its productiveness.—ED. G. M.]

SEEDLING GERANIUMS.—S. B. B., Warrenton, Va., sends us samples of seedling Geraniums of that class once known as "Scarlets," but now known as "Bedding Geraniums." There are now such an immense number of these that it will not do to say that they are superior to the best of those under culture, but they are certainly very good as far as we can judge from these specimens. But the full value of this class of plants can scarcely be determined by such specimens. They have to be grown side by side with the best, and the growth and habit considered as well as the form or shade of the flower.

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

As already noted color in fruit is a criterion of good culture. So far as out-door grapes are concerned, they are too often allowed to bear too many bunches, when very fine fruit is desired. A good strong healthy growth however will bring mostly to perfection a very full crop. The Western papers are saying that the color and flavor of grapes are improved by enclosing the bunch in a paper bag when it is about to color. By what we know of the advantages of shade to glass house fruit, it seems reasonable.

People sometimes are anxious to get rare kinds of strawberries to fruit early, and hence plantations are made in the fall. For general crops we think there is not much gained by fall planting. In the case of rare varieties, however, it is often worth a little extra trouble to do things well. The best way to proceed, is to get small pots with rich earth, and sinking them in the ground, layer runners into it. Such plants become very strong, and can be transplanted from the pots without injuring the roots, and will make strong stocks which will fruit very well next year. We raised some excellent strong plants this way last year; of course the result was not sufficient to enable one to form an opinion of its whole character; but we may say, that in spite of the excessively hot weather, it has turned out remarkably well. In regard to the best strawberries, it is remarkable that the bulk of all the thousands of bushels which come to the Philadelphia market is still of the older kinds. Amongst amateurs there is no one that carries universal supremacy with it, as personal taste dictates the favorite. But certainly those which are grown the most extensively are Boyden's Mammoth, Monarch of the West, Chas. Downing, Albany and Downer's Prolific.

As we write the seed men are out with their advertisements of turnip seed, and thus remind us to say that there seems to be a dearth of new varieties this season not only in the turnip, but in most other classes of garden vegetables.

The variety of tomatoes is now so great that in every city window we may note distinct

named kinds of local fame, but if there is any better kind than the Trophy to be found this season we hope our readers will let us know of it.

As for varieties of asparagus, we suppose the world has come to the conclusion we predicted it would, namely, that there is but one kind. We have seen plants in rich soil set two feet apart the first season as large and fine as any ever grown in this world, with no pretensions to the plants being any body's "Leviathan" or the Boa Constrictor of the asparagus family.

There are many vegetables which will come in toward Fall about which some consideration may be given now.

In many amateur gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The pea is a cool country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They need support. All peas grow better and produce more when grown to stakes.

Bush Beans may also be sown for late crops. A very deep rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them up to poles as they grow. The poles should not be too high; about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

The lettuce is another cool country plant. It can only be well grown in hot weather when in very rich and cool soil.

For winter use, beets are occasionally sown now, and also cucumbers for pickling purposes, but not often; and at any rate it must be attended to early in the month.

Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but many cultivators who grow for size and quantity only, believe they have the best results when growing them on the level ground.

Late cabbage is often planted in gardens between rows of potatoes, where it is an object to save space. Some fancy that the cabbage is better preserved in this way from the cabbage-fly, which they say prefers the potato; but on this point we are not sure. We do not think

the cabbages do quite as well as when they have the whole ground to themselves; but of course a double crop could not be expected to be quite so fine.

Preparations for the celery crop is one of the chief matters in this department at this season. No plant, perhaps, requires a richer soil than this, and of all manures, well decayed cow dung is found to be the best. After so many trials with different ways of growing them, those who have their own gardens,—amateurs, for whom we write,—find that the old plan of sinking the plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow manure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Salt in moderate doses is usually a wonderful special fertilizer for the celery plant.

COMMUNICATIONS.

ASPARAGUS.

BY GEN. W. H. NOBLE, BRIDGEPORT, CONN.

A few years since, I repeated in your journal a new way that had been told me of growing asparagus. It was based on the idea that asparagus yearly made new roots from its annual stalk, and a new crown. That the roots from these stalks year by year, fed higher up, needing "fresh fields and pastures new." That therefore, if you top-dressed the bed with a thick layer of loamy enrichment you furnished the necessary food for these roots. The bed would thus year by year, shape itself into an oval mound. In the trial which I named I think the plantation thus swelling to a little hill was thoroughly salted to keep down weeds, and well dosed with the kitchen slop from a hotel. I should think the trouble with such a bed would be lack of moisture in a dry time. Perhaps the hotel slop remedied that trouble.

An accidental trial of the method, and some study of the plant, led me to think the new way worthy of further test. Some other of your correspondents at the time endorsed the idea as within the range of their observation. The method calls for so little care beyond that annual dressing that it should incite thorough trial

by some who have charge of our agricultural colleges and experimental gardens.

That the gardener has not yet proved this method and reported its trial, is not a very heavy fault. Those who garden for profit, and those who cultivate solely for the table, can spare neither time nor space for experiments. Their business is with the dollars or the dish. To them and the future of the plants there are other sure ways for better crops and large growths. From the varieties we have, big or little cuttings hang on the question of manure. Asparagus demands rich and heavy food, and plenty of drink. No matter in what way we pile on the manure it will take all that it can push its stalks up through. The trouble is we do not half satiate its craving. It is a perfect glutton of enrichment. We starve the plant, and then talk about our asparagus bed running out. It is our feeding which runs out. It gives us return for all food within reach of its roots; when that is used up of course it dwindles. Asparagus no more runs out than an oak or an elm, but then it cannot send its roots on so wide a forage. It is severely cropped, often choked with weeds which steal its scanty food; and yet, helped by the rest of a winter, its melting snows, and the spring rains, in spite of our stingy feeding, it does pretty well. Try it, with a big, deep, full covering of well rotted and fat plant food and see how its stout succulent stalks will delight your purse and palate.

FORCING STRAWBERRIES.

BY MR. JOHN PAGET,
GARDENER TO HON. J. DONALD CAMERON,
HARRISBURG, PA.

I noticed in the January number of the GARDENERS' MONTHLY page 18, a notice of an article I suppose written to the New York Tribune, condemning Mr. Meehan's views on Strawberry growing under glass, and I suppose pitying every one else who tries it. That "fruit grower and farmer" says he has seen the attempt made, but never with success. I have also seen it tried every year for this last eighteen years, and I never saw a complete failure. I have seen them do better on some occasions than on others.

I always force from 200 to 300 pots of Strawberries. This year I had 250 pots, from which I picked fifty-five quarts and one pint of berries, first class in every respect. I picked the

first berries on the first day of March, and the last of them on the first day of May; the most picked in one day was nine quarts on the last day of March.

I will be glad to hear from any one through the MONTHLY who may consider it a failure, for I don't. I know of no better authority for my statement than my own respected employer, if the "fruit grower and farmer" doubts it.

HARDINESS OF THE JAPAN PERSIMMON.

BY A. B. C., PHILA.

I wrote to you that my only surviving Japan Persimmon had perished, "root" and branch during the past winter. That indeed did seem to be the fact at the time I wrote to you. The stem and the top of the roots near the ground, were killed as I then said, but it seems the lower portions of the roots survived, and from them I have a good crop of sprouts.

Practically the matter stands as it was before, for a fruit tree that gets killed to the ground in a not very severe winter is of no value; but as I said it was killed "root and branch," it is due to truth to say that it was not utterly destroyed.

EDITORIAL NOTES.

CRACKING OF THE PEAR.—It is generally supposed by American pear growers that Europe is the paradise of fruit growing, but in truth they have their peculiar troubles as we have ours; indeed they have many troubles of a kind similar to our own. Of "cracking," a correspondent of the London *Garden* writing of the "Pear in English Market Gardens," thus speaks:

"Pears of the commoner kinds are chiefly grown on the old-fashioned standard run-wild system, no pruning being given but what is done with the saw; and, in a good season, it is wonderful how heavily the trees are laden with fruit. These standards have been "worked" on the pear stock, which forms a clean stem, the branches usually springing from near the union of the stock with the scion. There are dwarf pear trees too, and many that succeed better on the quince than on the pear. Market gardeners generally are not, however, very particular about their stocks, for they get the bulk of their trees at the nurseries, and what they graft themselves is usually done on whatever stock they have at hand, be it seedling, sucker, or layer of

pear or quince. They practice grafting more on old and worn out trees than on young stocks, and for this purpose they head back the trees in winter or early in spring, either at pruning or digging time; the scions, after being selected, are "heeled in" until March, when they are put on the trees. Grafting more than one kind of pear on a tree is said to be a preventive of fruit cracking during the swelling period. A large grower near London, who possesses the finest natural pear tree soil in the district, states that a somewhat light yet deep, substantial, hazelly loam suits pears best. In reference to cracking, he found that, although the trees were in a thriving and healthy condition, and annually set good crops of fruit, yet at gathering time scarcely a half sieveful of good marketable pears could be obtained from them, the fruits being invariably cracked. This induced him to try the effect of grafting more than one sort on each tree, and the result proved most satisfactory; for, not only did the grafted portions produce excellent fruit, but the original kinds no longer cracked; on the contrary, they produced fruit of exceedingly fine quality, well formed and symmetrical. Finding grafting in this way successful in a few cases, he extended the practice throughout his orchards; therefore, where one kind of pear grew alone on a tree, now there are at least three sorts, each apparently being of material benefit to the other; for example, a number of trees, formerly *Beurre Diel* only, now bear huge branches of *Beurre Bosc* and *Louise Bonne*, the trees being furnished in good season with large crops of these three sorts."

As for the remedies suggested, we may remind our readers that "cracking" is a very indefinite term, and that cracked pears come from a variety of causes. The cracking which we find on the *White Doyenne* undoubtedly comes from the growth of a minute fungus, which in an early stage of growth destroys the cuticle; this deprived of the power of increasing its cells at that particular point, as healthy cuticle can do in order to permit the expansion as the fruit grows, has to crack. But the cracking of *Beurre Giffard*, as we have carefully noted, and perhaps in *Beurre Diel* and others which we have not noted so closely, does not appear to come from fungoid attacks, and we have never been able to arrive at a clear understanding of the cause. In these latter cases perhaps the companionship of some other kind on the same main stem might remedy the trouble; but we can say posi-

tively in the case of the fungoid cracking of *White Doyenne*, it will not, as we know of one top grafted with *Bartlett* twelve years ago. The *Bartletts* are always good, the *White Doyenne* never, all on the same tree.

VERY EARLY PEACHES.—The fruit promised by Mr. John H. Parnell, of West Point, Georgia, came duly to hand on the 25th of last month. The *Early Beatrice* came in the best condition. As a matter of profit it is doubtful whether these very early peaches would be a success in the Philadelphia market. The fruit is not equal in quality to the later kinds, and as they come in the height of the strawberry season, we fancy the latter fruit would keep the lead in most tastes.

LARGE STRAWBERRIES.—Philadelphia was this season supplied with an immense quantity of large and luscious strawberries, reminding us of the days when Knox brought in his immense crops of *Triomphe de Grand* and *Jucundas*. Although we aspire to be a member of the Board of New Fruit Patents when it is organized, we must admit that we could not in all cases tell exactly what kinds they were. Perhaps they were seedlings as yet unnamed. At any rate either good culture or good kinds gave us this season good strawberries.

FRUIT OF THE JAPAN PERSIMMON.—We have been desirous to know whether the Japan Persimmon, so very grateful to the palate in the dried form as received from Asia, is desirable as a fresh fruit. Dr. Calder who served some years as a missionary in China, informs us that it is one of the most agreeable of fruits, and quite free from that astringency which gives to the American variety its defective character.

PEACHES IN NEW HAMPSHIRE.—Mr. Jacob Manning tells the *American Cultivator* that he saw hundreds of bushels of beautiful fruit in Goffstown, New Hampshire, last year, and that they seldom fail of a full crop on such high hill farms in that State. He thinks there will be a full crop and the "whole land may hope for peaches this year."

SCRAPS AND QUERIES.

INJURY FROM SEVENTEEN-YEAR LOCUST. A Western Missouri correspondent writes: "What are called the seventeen-year locusts are hatching out here in great numbers and we

would enquire whether they do much damage to nursery stock or not, and if so, if there is anything that can be done? We think you had them East, a year or so ago, but we paid no attention to reports of them at the time. Any information you can give will greatly oblige."

[This insect comes to the surface of the earth for the purpose of depositing its eggs, and then dying. It has a short, but merry life as a perfect insect. The eggs are deposited in the young branches. The young larva feeds on the branch, and by the time it is large enough to go into the ground, the twig breaks off, and in this way deforms the tree. Then the stock looks bad by the scar made on the bark by the act of oviposition. This is the chief injury. Where there are large forest trees, they often prefer the heights, to lower nursery trees.—ED. G. M.]

THE ROCKLINGTON GRAPE.—Mr. John Charlton, Rochester, N. Y., sends a plant of a grape vine, with the following account of it: "It is a large showy white grape, of fair quality, good constitution, a great cropper and entirely hardy."

PEACH YELLOWS IN MICHIGAN.—An intelligent South Haven correspondent writes: "I have read some things from your correspondents in Illinois in regard to peach trees, which I should have liked to answer. 'The Vagaries of the Peach' amused us, because it was an excellent description of the 'yellows.' I thought some more experienced person ought to explain, because it was through ignorance that the disease was introduced here. Such abnormally large fruit, and such early ripening of a well known sort, induced a peach grower to buy a tree, and thousands were budded from it. The loss to our own town can scarcely be estimated. The fruit ripens at least two weeks before its usual time, is unusually large, spotted red, and rather tasteless. Contrary to common belief the disease begins in the top of the tree, one branch or twig alone sometimes; seldom attacks the whole tree at once, and kills it gradually from the top down. Now is it possible that the disease is in the roots? The leaves look healthy but the small shoots die off in a mass on the bearing wood. The only abnormal appearance is in thickened spots in the pith of the bearing wood. Erysiphi was common on the trees last year, as well as the curled leaf (*Ascomyces deformans*), but this year the trees look much better. We have no remedy, but destroy what we cannot cure."

FORESTRY.

EDITORIAL NOTES.

TIMBER GROWING IN THE WEST.—Taking up a copy of "Marshall on Gardening," published nearly a hundred years ago, the author predicts that at the rate of destruction of timber trees in England the whole supply will be exhausted "in five years." In our own country there have been numerous predictions of a similar kind. Benjamin Franklin was sure that in twenty years (we believe, for we have not his exact words before us now,) American timber would also be all exhausted. We have always contended that these reckless statements and prophecies by men intelligent in certain lines of culture, but ignorant of what is practically being done, injure instead of advance timber culture, and for this reason we have done our best to expose their fallacies. There is nothing so sensitive as capital; and when we ask capital to go into timber culture, tell it there will be no timber in so many years, and capitalists know that this cry has existed for a century, or even centuries, and that there is timber still, and likely to be, capital shrinks and goes elsewhere. It takes some time for money to return after it is invested in forest planting, and one inclined to plant for profit will and ought to have the exact facts and figures to work on. There are numerous places in our country where we are sure timber culture will prove a certain and profitable investment; but just where these are and what timber is profitable to grow, require careful and cool investigation.

We are moved to these remarks by the "Forestry Annual of the Iowa Horticultural Society," printed for gratuitous distribution to Iowa tree planters. The Society collects all the facts possible about Iowa tree planting and gives it to the public in this useful form. This is the sort of work America wants, and is worth a thousand trips to European forests, or tons of reprints made up of newspaper clippings, or of extracts from threadbare stories of the marvelous kind. We believe this valuable record of experience can be had of Prof. J. L. Budd, Ames, Iowa.

CATALPA TIMBER.—In many newspapers articles continually appear, warning people

against planting anything but the "hardy Catalpa." A nurseryman recently showed us a letter from a Georgia gentleman, ordering only the "hardy Catalpa," and he "did not want the tender one," just as if one was a hot-house plant. There is no doubt about there being two varieties of Catalpa. The differences may even amount to what may be called specific; one may be even harder in the upper Missouri States than the other, but the idea sought to be impressed on the people that the common Catalpa is tender in the usual acceptance of the word, only originates in misconception. There may be a hardy and a harder Catalpa, but that there is a "tender" and a "hardy" Catalpa, using the word as gardeners use them, is wholly unwarranted by the facts, and the persistency in the use of these terms, as we see by the letter above quoted, leads to confusion.

THE TULIP AND CUCUMBER TREES IN KANSAS.—A Cowly County correspondent inquires how these two trees will thrive in that State. We cannot recall any instance from personal observation, but have seen them thriving admirably across the line in Missouri. There have been a great many of these and other trees sent to Kansas during the past fifteen years, and any information about any of these introduced trees will be very acceptable.

ARBORICULTURAL LECTURES.—The lectures on Arboriculture and Kindred Sciences, by Prof. J. T. Rothrock, have been unusually well attended this season. They will be continued every Saturday at 4 o'clock, in the Conservatory in Fairmount Park, Philadelphia, till the first week in August.

FOREST FIRES.—Some of the leading daily papers continue to call urgently for measures to prevent the wanton destruction of Pennsylvania forests by fires. Exactly so. It is easy to "call" for measures—we are all calling—but what shall those "measures" be?

SOUND TIMBER.—Borers are destructive to logs. It is said that if the timber is cut in spring after sap commences to flow and the bark will readily peel, the borers will not trouble them. Perhaps so, but how about the quality of the timber?

THE "TENDER" CATALPA AT MUSCATINE.—In the *Forestry Annual* Mr. Suel Foster speaks of comparative trials with the "hardy" and the "tender" kinds at Muscatine, and finds that the one flowers three weeks before the other kind. But as we have to take it for granted that the tender kind has to be preserved in a greenhouse during the Winter or otherwise protected, there will naturally be some difference in the time of flowering.

ARBORICULTURAL THEOLOGY.—Generally we read what horticulturists write, perhaps for a whole life time, without being able to detect the political or theological opinions of the writers. But in an address by one of our distinguished forestry advocates, describing a scene in the Rocky Mountains we read:

"While contemplating these noble trees, we suddenly came upon a scene of appalling desolation. Upon a tract of many square miles in extent, as far as the eye could reach in every direction over many thousands of acres, there was not a living tree to be seen. All, all were standing bare, stark and stiff in death, their tall, dead trunks blackened by fire, except where time had come to their relief and stripped off the bark, leaving the bare poles that stood beside the way like shivering ghosts in purgatory, waiting until the storms of years should come to their relief and prostrate them to the earth that bore them, when they would at length gradually crumble into mold to renovate the soil, which had been deprived of all its humus by the fierce flames."

By this we see that in our friend's view of purgatory it has a remarkably cool climate.

THE CALIFORNIA WALNUT.—Mr. W. C. L. Drew has a good word for this tree, in the *Rural New Yorker* he says:

"Trees of this kind were found growing only in one locality in the foot-hills of the Sierra Nevada, but from there they have been introduced into nearly all sections of the State. The tree is a slow grower, and has to be from eight to ten years old before producing fruit, but after it has once borne fruit, it will never fail to set a yearly crop. The tree grows from twenty to forty feet high, is strong, hardy, and well branched. The foliage is of a rich, dark green, and quite different from that of the English or Eastern Walnut; it is unequally pinnate, compound, from ten to fourteen inches long, the leaflets, of which there are fifteen to thirty-five

on a leaf, are lanceolate in shape, about three-quarters to one inch across at their broadest portion, and from two to three and a-half inches in length; the foliage is very densely set on the tree, much more so than in the English Walnut."

SEQUOIA GIGANTEA.—We learn from a California paper that a contract has been let by the Yosemite Commissioners to bore a hole in a stump in the Tuolumne grove of big trees, so that the stages can pass through. The stump is thirty-three feet in diameter, and the hole will be twelve feet wide by ten feet high, and was to be completed by June 10th.

THE BLUE GUM IN CALIFORNIA.—A correspondent of the *Pacific Rural Press* controverts the statement made that the Eucalyptus though growing fast is useless as a forest tree. He says: "In the gum forest near Haywards, in April, 1877, (the forest was planted in the winter of 1869 and 1870) ten acres of it underwent a thinning out, leaving per acre 100 of the best trees standing. The yield from the ten acres was 149 cords of wood, 600 poles the size of telegraph, and 160 pieces of the size of railway sleepers. Also on previous years, on the same ten acres, some six or eight cords, or more, were taken at different times. The 1,000 trees left standing on the ten acres were from 80 to 100 feet in height; the largest six feet in circumference near the ground. The cord wood sold readily on the ground at from \$5.75 to \$6 per cord."

THE ENGLISH WALNUT IN CALIFORNIA.—The *Pacific Rural Press* says: "Experience with the English walnut has taught us to regard it as one of the most beautiful and rapid growing trees for purposes of shade yet introduced on this coast. Independent of its desirability as a shade tree, it is valuable as a timber tree for various manufacturing purposes; in addition to which, the commercial value, after a few years, of the nuts would pay a good interest on the investment. It is very hardy and seems peculiarly adapted to our Sacramento river lands—to which alone our experience extends in growing it. We think it no exaggeration to say that fifty acres in walnut trees—set out now—twenty years hence, would be worth more for nuts and timber, than 500 acres of the best land in the county for grain. A grove of these trees, if set out at one-year-old, would not preclude the use of the land for other purposes beyond the first two years after planting. The follow-

ing from the Marysville *Appeal*, as to the rapidity of their growth, corresponds with our own observation: "At the gunsmith shop of B. Bigelow, may be seen some very beautiful and valuable timber from English walnut trees grown at the old Briggs' ranch, on Yuba river. In 1858, Geo. Briggs planted the nuts and the trees grew to be large and very prolific in yield, one being thirty-five inches in diameter at the time of their destruction by the flood of 1875, the roots being covered to such a depth by sand that they ceased to leaf and were soon after cut down and the body of the trees used. The annual growth for the seventeen years is clearly discernible by the rings or grain of the larger pieces. Mr. Bigelow had the stumps grubbed out a few months since and shipped by boat to the planing mills of D. A. McDonald & Co., 217 Spear Street, San Francisco. This mill has the first and largest band saw manufactured on the Pacific coast, it being five inches wide and forty-four feet long, and is perhaps the only place where the stubber and tough wood could have been worked up. Mr. Bigelow has now a very large stock of the best of timber at a small cost, and will use the most of it for the manufacture of gunstocks."

OUR FUTURE TIMBER SUPPLY.—*The Journal of Commerce* says:

"The three States of Michigan, Wisconsin and Minnesota are the only ones that have a supply of timber beyond their own necessities, and at present rate of consumption, their forests are soon likely to be robbed of the riches which a few years ago were thought inexhaustible. At the present rate of demand six years will exhaust the supply of white pine that these States now afford. Many persons have relied upon the forests of Canada after our own are entirely despoiled, but the statement of experts go to prove that Canada has not a sufficient quantity to last us three years. In view of these facts, it seems to be the bounden duty of our Legislatures, both National and State, to take early and active steps to preserve our forests from useless destruction, and to encourage the growth of new timber land."

The great difficulty in all these suggestions about "legislation" is that no one is able to tell the Legislatures how to legislate to any advantage. When the members of the Legislature ask for this information they are generally told "See how they do it in Europe." European governments own the people. In America the

people own the government, or are supposed so to do. No one here wants the government to go into the foresting business "as they do in Europe"—at least no one ought to want it. All that is left is to encourage individual enterprise. But this can best be done by the agricultural papers. If there is to be no more white pine "after six years," the one who has a few hundred acres of white pine will surely have a nice little fortune, and the average "Yank" is not slow to go into a fortune when it can be shown to be surely before him. But the great trouble is to make the capitalist believe there is this "imminent scarcity." Let those who dread it show that it is not mere vague apprehension, but solid fact, and there will need very little legislation to induce the people to go into the forestry business.—*Philadelphia Press*.

BLACK WALNUT; IMPORTANT TO THE CABINET TRADE.—The *N. W. Lumberman* of Chicago says:

"There has been much said of late about the rapid exhaustion of the supply of black walnut timber in this country. Sensational newspaper writers and hard-fisted individuals having a little walnut timber, for which they are anxious to get as good a price as possible, have industriously spread the report that about all of this kind of wood has been consumed, and that the supply remaining will not suffice for the requirements of a dozen years. It is declared that black walnut trees are becoming almost as scarce in Ohio and Indiana as date palms, and that the time is near at hand, indeed, when the most diligent searching will fail to disclose a single specimen. While it is no doubt true that the supply of walnut, like that of every other commercial wood, is rapidly diminishing under the constant and ever increasing industrial demands of the country, we are inclined to believe that the end of it is still a long way off. In conversation recently with a hardwood lumberman of very wide experience, this subject was brought up, and he expressed the opinion that there is no necessity for the present generation, at least, to become alarmed about the stock of black walnut."

There is no small amount still standing in Ohio and Indiana in spite of all that is said about the impossibility of finding it. Farmers and landholders who came into possession of the timber when it was comparatively valueless are holding it very much as they are their bank stocks or Government bonds, if they have any, as a

provision against a rainy day. Occasionally one of these men die, and in settling up his estate the black walnut is thrown on the market in lots varying from 100,000 to 1,000,000 feet. Our informant states that such sales are very frequent, and prove pretty conclusively that Indiana walnut is not a thing of the past. And besides, there are extensive sources of supply that have not yet been touched. Walnut timber is found even in Alabama, and in Tennessee there are vast acres of timber land within whose limits the sound of an axe has never been heard. Black walnut may become scarce, but we venture to predict that the supply will not be exhausted while any one now living remains upon the earth."

SCRAPS AND QUERIES.

WILLIAM PENN AND FORESTRY.—"Frutex," Philadelphia, writes: "In one of Dr. Rothrock's Fairmount Park Lectures it is stated that there was provision made by William Penn, July 11th, 1681, 'that in clearing the ground, care be taken to leave one acre of trees for every five acres cleared, especially to preserve the oak and mulberry trees for silk and shipping.' It would be interesting to know in the subsequent sale of Pennsylvania lands, how this healthful provision came to be abrogated. There is much in the agrarian and arboreal history of our State that would perhaps be of interest if it could be brought out."

SOWING TIMBER TREES.—T. B., Leavenworth, Kansas, writes: "A friend of mine in a part of this State where there is no timber, wishes the GARDENER'S MONTHLY to advise him whether it is better to sow seed of timber trees where they are to stand, or to set out young trees?"

[As an abstract question we would have no hesitation in saying that a seedling tree never moved, would come into use much earlier than one transplanted; but as a practical question it will be found much best to set out the seedling trees, except perhaps in a few rare instances.—Ed. G. M.]

DESTRUCTION OF FORESTS.—A California correspondent says: "There is a very sensible article in the *Nation* of the 1st inst., on the 'Present and future of the Sierra Forests,' by Prof. C. S. Sargent, Director of the Botanic Garden of Harvard University, that will well repay perusal. The fire fiend, and sheep nuisance are rapidly denuding our grand old forests of the Sierra; burning up the grown trees, and eating up the young. Where once stood a luxurious forest growth there is now a fire and sheep created desert. From a single stand-point (the south dome of Yosemite), I counted at one time, nineteen large fires, with their tongues of flame licking up the young trees the sheep had spared, and sweeping off whole forests of grown trees set on fire by sheepmen. Who does not excrete this?"

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CARNIVOROUS PLANTS.

BY GEO. FOUST, BARNEGAT, N. J.

Our venerable friend and florist Mr. P. Hendeson, puts things very nicely in his argument that plants do not feed through the pores of the leaves. Still, Mr. Editor I have to take sides with you and state that so far as my experience goes, plants can be made to grow better, pro-

duce larger and more abundant flower trusses and also thriftier looking by stimulating them through the pores of the leaves. I submit a formula for all the readers of the Monthly to experiment with, viz: Multiply the length by the breadth of your house and find number of square feet. To every 200 square feet, take one teaspoonful of spirits of ammonia, and two teaspoonful of water. Heat a pan or shovel very hot and walk through the house pouring the mixture on the hot surface so as to vaporise it.

This to be done once a week, preferably in the evening. And if after two months trial of this method no benefit is derived, I will then give in that I am wrong. No harm can be done in any case, whether foliage plants, orchids or ferns, the result with me has always been the same. I hope all will try it, including Mr. Henderson, and report on its merits or demerits.

THORNLESS HONEY LOCUST.

BY PROF. ROBERT MILLIKEN, EMPORIA, KANSAS.

A correspondent in your February number inquires about the thornless Honey Locust. I would like to say to him that such a variety is found quite frequently in the timber belt along the Neosho, in this part of the State, and is much superior to the common variety on account of the absence of thorns.

A few years ago a nurseryman of this place raised and put upon the market a few trees of this kind, but I am not aware that any are to be found in our nurseries. If your correspondent will send me his address I will take pleasure in putting him in the way of procuring the seeds.

FERTILIZATION BY BEES.

BY THOS. F. FORFAR.

A paragraph has been circulating in the newspapers for the last few years and it appears as if it is to continue. As I stumble over it every month or two, I do not quite understand it, and would like more light. The paragraph is to the effect that Red Clover, *Trifolium pratense*, produces no seed in New Zealand, and that it is because there are no humble bees there, so an importation from England had to be made. Now if such be the case, I have no doubt many of your readers would like to hear some of the details of the voyage of a vessel containing such a queer cargo. Who caught the B. Bs.? And how were they caught? And, as their lives are short, how was the race perpetuated on the voyage? And, finally, did their presence in New Zealand cause the perfecting of the seed?

The flowers of *Trifolium repens* being perfect, are capable under all ordinary circumstances, of self-fertilization; but if by chance, or some climatic influence, the pollen or some of the organs should become imperfect, and to all practical purposes one plant staminate and another pistillate, the bees would be of little use,

from the fact that they always attend to their own business and do only one thing at a time. If they go out to gather honey they gather honey alone, not either honey or bee-bread; and if they go out to gather pollen they do so and nothing else. Now in gathering honey from dioecious flowers as in the willow for instance, they only visit pistillate flowers; and for wax only staminate ones. Again, should the flowers be all staminate, there would be no stigma to be fertilized, or should they be all pistillate, there would be no pollen to fertilize them. The only way I can see in which the bees could be of use, would be where a portion of the flowers had their pollen or reproductive organs perfect, but in that case seed would be produced without the aid of the bees, and the paragraph would be untrue. If the whole thing is not a hoax, it is probable that extreme heat, or continued wet weather has something to do with the infertility. Extreme heat will cause the nectar or sticky substance on the stigma to dry up, and when such is the case, the pollen will not adhere to the stigma, nor will expansion of the inner sac or case of the pollen grains take place, consequently there can be no fertilization of the ovary. Wet weather will cause the honey to be dissolved and frequently both pollen and honey are washed away. The honey that is on the stigma has two offices: first, to cause the pollen to adhere to the stigma, and secondly, to keep the grains of pollen moist, and assist the inner sac to expand so that it may reach the ovary before bursting.

OF SNAKES SWALLOWING THEIR YOUNG.

BY BARON FERDINAND VON MUELLER, MELBOURNE, AUSTRALIA.

In reading the GARDENER'S MONTHLY just come to hand, I note the passages referring to the curious fact that snakes, at least of some sorts, will swallow their young while they are very small to protect them against danger. As your statement on this subject was not credited, it may be some satisfaction to you that in two instances very intelligent and trustworthy Australian colonists related to me, independently in different parts of this country and at a different time, that they had witnessed snakes conceal their small fry in the mouth or throat when danger arose. One of the gentlemen assured me that the maternal snake made a hissing sound when he approached, and that the young

ones, which were creeping about in the grass, came from different directions, hurrying into the mouth of the mother one after another.

The opportunities for really witnessing this mode of concealing their young is probably rare; and it may be that only some kinds of snakes have that propensity. I have in my thirty years travels through the Australian Continent encountered these dangerous creatures so often, that I for safety's sake always tried to get out of the way on the least chance of seeing them; hence, I cannot speak of my own experience on the subject, and I am now sorry that I omitted to ask the natives about this.

THE GRAPE PHYLLOXERA.

BY C. V. RILEY, BEFORE THE MISSOURI STATE HORTICULTURAL SOCIETY.

The fact that about two hundred and eighty tons of California grapes were received and sold in the markets of Philadelphia during the past season, is sufficient to show that the grape interest in this country is increasing in importance, and to lead to the hope that the discouragement which the Missouri grape growers must feel after four consecutive unfavorable seasons must needs soon give way before brighter prospects, that it seems to me are necessarily in store for him. One thing is sure, namely, that the interest manifested abroad in our American grape vines does not flag. These vines are constantly discussed in the foreign horticultural journals, while one periodical entitled *La Vigne Americaine* (the American Vine), is entirely devoted to them. It is a source of no little satisfaction to me that the varieties which I first recommended seven years ago are, in the main, those still sought for and used by the French sufferers from phylloxera, as stock on which to graft their viniferas. It is further interesting to observe that the grounds that I took in regard to grafting above ground, in my Seventh Report, pp. 108 to 116, are justified by the experience had during the last few years in France. Such grafting is found to be quite practicable, notwithstanding the want of faith shown in it by our earlier ampelographers. I sincerely hope that this question of grafting the vine above ground as a means of evading the injuries of phylloxera or of improving such varieties as do not succeed upon their own roots will be discussed by your society, so as to bring out whatever experience on the subject the Missouri grape growers have had of late. The fears which I expressed

in my Seventh Report as to the danger of the introduction and spread of the phylloxera in California, have also been more than justified, since many vineyards have already been seriously injured or totally destroyed by the insect. I am glad to be able to confirm in this connection the truth of the statement of Mr. P. J. Berckmans, of Augusta, Ga., namely, that this insect does not occur in that locality. While spending a few days with him last September I was able to verify its non-occurrence there; and here let me remark that however much contempt a Missourian may have for the Scuppernong, no one can witness the prolificacy, or experience the delicacy and sweetness of such varieties as Tender-pulp and Thomas, as they grow in that region, without having a due appreciation of their value for the Southern States.

Regarding the range of phylloxera, it had often been asserted that around Washington the root insect was not to be found, yet I have found it extremely abundant both in the vineyards of the District and of those just across the line in Virginia, some of the latter suffering to such an extent that the crop was a failure, though the owners were unsuspecting of the cause.

After reviewing in my Eighth Report all that was then known of the habits and natural history of the grape phylloxera, I drew certain practical conclusions to the effect that complete knowledge of its habits, instead of simplifying its destruction, showed that it was almost if not quite hopeless to expect its destruction by any possible or practical means, and rendered preventive measures all the more urgent. I expressed my doubt as to the value of decortication of the vines and the burning of the bark in Winter, or any means which aimed at the killing of the Winter eggs upon the branches and canes of the vines. Diligent search had failed to reveal these Winter eggs in anything like the quantity one might expect, and the fact remained that the insect could go on propagating under ground for at least four years without the necessary intervention of the impregnated egg. Further researches made since confirm me in the belief that the normal mode of hibernation of the species is as a young larva upon the roots. From the results of the deliberations of the International Phylloxera Congress, held last Summer at Lausanne, France, it was conclusively proved that decortication, as I had anticipated, was of little or no avail.

Before leaving the question of phylloxera, let

me briefly refer to certain theories first propounded by Prof. A. C. Cook, and that have been extensively promulgated during the past two years. As to the relation of phylloxera and grape-rot I took occasion last Spring to protest, in the *New York Tribune*, against the supposed connection between the two, and it will not be out of place to repeat the reasons: "Already in 1871, when I first announced the presence of phylloxera on the roots of American vines, and explained the injury which it caused, there were writers who, not content with the simple facts, went much further and asserted that this little insect must also be the cause of mildew, rot, etc. Prof. Cook has jumped to similar false conclusions, and has, during the present Winter, promulgated before various societies his belief that the phylloxera is the cause of black-rot in grapes. This is sensation, not science, and it is to be deplored, coming from the source it does. The phylloxera occurs in most grape-growing sections of the country east of the Rocky Mountains, and will quite naturally be found on vines on which the fruit has rotted. But an experience covering several years, and the examination of hundreds of vines with rot of fruit and without it, enables me to deny the assertion that the insect is more numerous on the former than on the latter. The phylloxera disease has its own peculiar characteristics, which are at once distinguished from other vine diseases by those understanding it. There are also very conclusive reasons for discarding the views of Prof. Cook. 1—In France, where the phylloxera has been so very destructive, the black-rot has not accompanied nor followed it. 2—The rot, so far as I have observed it, is no worse on the susceptible than on the more resistant varieties, while many cases might be adduced of healthy vines, and those least affected with the insect, suffering most from rot. 3—On account of the three successive wet summers of 1875, 1876 and 1877, in this part of the country, (Missouri,) the phylloxera has been less numerous and less injurious than at any time since 1871, and many vines that were suffering near to death have recuperated. Yet no year since the time mentioned has black-rot been worse than it was last Summer."

A FORMIC DUEL.

BY REV. E. P. P.

Going one day last Summer to my barn, I was startled by finding a genuine duel in progress on

the threshold of the open door. The two largest ants that I am sure I ever saw were in a fierce contest apparently for mere individual prowess. There was nothing about them to fight for; there were no other ants about, and they were of the same species, and about the same size. They wrestled like athletes and stood up to it for a square fight. Neither one seemed to gain any advantage, nor was either one likely to be maimed, as always occurs when black and brown ants contend. Impatient with waiting I stepped forward, when they both erected themselves and stared at me for a moment and then darted off to the same retreat. There was every appearance of a quarrel in their tussel, which they had manfully agreed to settle *a la Gambetta*.

The most interesting ant study I have ever enjoyed was a few years since, when I fortunately came upon a colony moving to a new abode. They came up from the earth in a procession that lasted for certainly more than two days. A part of the way they traveled on the top of a rail fence. Many of the ants were loaded with larvæ, others seemed empty-handed, or empty mouthed rather. Sometimes a large number came in close procession, then there would be a break for a few moments, or single ants would at intervals appear. The caravan again entered the earth after traversing a space of some twenty rods, over brush, stones, and into a thicket of blackberries and young growth of birch and hemlock. It was a species that tunnel without raising a mound.

EDITORIAL NOTES

PRESERVING THE NATURAL COLORS OF FLOWERS.—According to the *Breslauer Gewerbe Zeitung*, the natural colors of flowers and plants intended for herbaria may be preserved by dipping them from time to time in a boiling solution of eight grains of salicylic acid in three-quarters of a pint of water, afterwards carefully drying them between sheets of blotting-paper.

CHINESE BOTANICAL AND HORTICULTURAL LITERATURE.—A writer in *Der Deutsche Garten* states that the imperial library of China contains 15,000 works on the cultivation of flowers and botany, whereof about 500 are devoted to the Rose alone. Such quantities of Roses are grown in the Emperor's gardens that the sale

of the essence prepared therefrom annually brings £5000 into the treasury. Talking of Chinese botanical literature, reminds us that the Japanese have already adopted the botanical nomenclature recognized in Europe and other countries, and their illustrations of the flora of Japan to which the latin names are attached are exceedingly good.

THE EFFECTS OF DROUGHT ON PLANTS.—The amount of drought some plants will bear with impunity is surprising. Dr. G. Schweinfurth, in Petermann's *Mittheilungen*, gives an account of his recent journey across the Arabian desert, from Heluan to Qeneh, and mentions some interesting facts concerning the vegetation. In Wady Qeneh, he states, no rain had fallen for six years, but some *Acacias* and *Tamarisk* were still green and flourishing, and apparently unaffected, whilst the last traces of herbaceous plants had disappeared. In a more favored part he found the valleys covered with *Salvia palestina*, a very handsome species, three feet high, with a profusion of sky-blue flowers.

ANNUAL ORCHIDS.—The general newspaper office, often has handy men in connection therewith who will on the shortest notice write "a highly interesting article" on subjects they know nothing whatever about. A good encyclopædia and shrewdness to keep from error, is the talent required. But sometimes these sharp fellows get caught, and once in a while they try their hand with professedly scientific magazines. Prof. Gray recently showed up one of these "fancy sketches" in the *American Naturalist*, and here is a choice bit of the same sort, as translated by the *Scientific American* from *La Nature*. "While the orchidaceæ indigenous in the temperate zones are generally annual or biennial herbs of from six inches to eighteen inches in height, the tropical zones possess a great many which are perennial." There are a great many funny things in this article, but the "generally annual" orchids of the temperate zone is enough for our pages.

SALT LAKE AND TREE PLANTING.—The writer of this was probably among the first to show that the ideas of Humbolt and others, as collected by Mr. Marsh, in his work, that the cutting away of forests, however deplorable from many points of view it might be, had nothing to do with the rise or fall of the water in lakes. In the review of Dr. Hough's American Association paper

in the *New York Tribune*, it was at any rate shown that the rise in the waters of Great Salt Lake was not due to the planting of trees by the Mormons, for that really they had cut away infinitely more than they had planted. Geology now confirms the point. As to tree planting, Mr. King, in the report of the United States Geological Survey, shows this to be a wrong inference, for a similar increase has affected all the lakes of the great basin. He shows partly from observations connected with the growth of trees on the Sierra, that this is due to a climatic oscillation that began about 1860, and which was the first of its kind and extent that has occurred within at least 250 years. An exchange says that this question of oscillation of climate is full of importance to the populations that are pouring into the regions of the great plains during the present moist extreme.

SCRAPS AND QUERIES.

SWEET SCENTED GALIUM.—Mrs. L. A. Millington sends from Michigan, a piece of *Galium triflorum*, which is as fragrant as new-mown hay. So far as we know it has not been recorded that this plant possesses fragrance when dried.

SAXIFRAGA PENNSYLVANICA.—W.H.P., Iowa City, Iowa. This is the plant you send. It is widely spread through damp meadows in the Northern Atlantic States. Though devoid of beauty, it is an interesting member of the great family of Saxifrage.

PHENOMENAL GROWTH.—T. T. S., Rochester, N. Y., writes: "My attention was attracted this morning, (June 7th,) by the appearance of a Seckel pear tree in my garden. On examination I found a perfect blossom on the end of nearly each specimen of fruit. The firmness and freshness of the bloom would seem to indicate that the blossoms were new ones, rather than the original bloom, although I cannot understand how this can be possible. I send you some specimens by mail, by which you will see some of the fruit is of considerable size."

[An examination showed that these little pears had not had petals before this season. It is a remarkable case of arrest and subsequent development of petals. The calyx had evidently expanded at the proper time in Spring,

and the ovary (subsequently to be the "pears,") had continued to grow, as in ordinary cases, but the petals for some reason have been held back till now, (June 12th). Growth is always in waves, in this case the wave bearing the petals has been more than usually retarded. —ED. G. M.]

TALINUM TERETIFOLIUM.—Dr. Peyre Porcher, of Charleston, S. C., and author of that excellent work, the "Resources of the Southern Fields and Forests," writes regarding the statement in Meehan's "Flowers and Ferns of the

United States," that the blossoms of *Talinum teretifolium* are open only for about an hour at noon: "the ladies of my house have been very much pleased with many of your descriptions, especially of a little plant we all recognised, the *Talinum*, having seen it growing at the base and on the top of Glossy mountain, near Flat Rock, North Carolina. We made similar observations with regard to the ephemeral duration of the flowers. Specimens being planted in a box, were observed to open their flowers between one and half past one, and to close up at half past two in the afternoon."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—NO. 2.

BY JACQUES.

English naturalists are speculating anew as to rats gnawing lead pipes to get a drink; some think they can hear the water running, while others believe they gnaw the lead because their incisors like to be employed. What is the fact?

At the Cape of Good Hope it has been observed that small acorns and thorns frequently penetrate the skins of sheep. In one case a fore-quarter of mutton was found so full of grass seeds that it resembled a ham just unpacked from a bag of chaff. Many of the seeds had their long thin tails drawn through the flesh like threads interlacing each other in every direction. Has this ever been observed in America?

One of the shocking habits of citizens, especially young girls, on visits to a garden or a park is to pull up all the flowers they see, and too generally by the roots. The *Epigæa* formerly abundant near Philadelphia, has now disappeared from certain localities. The *Kalmia* too is gone. A lady was brought before a magistrate the other day with her apron full of recently planted Ivy, which had been replaced on a wall, where it was much wanted, six times.

Who speaks first for the formation of a society to suppress cruelty to plants, and planters also?

The singing bird most to be prized in captivity is the Bobolink or Reed Bird, whose song is perfection to the human ear. Poets have tried their powers in describing his song: the best is—

"Anacreon of the meadows,
Drunk with the joys of Spring, &c."

This is Byrant or who? The wonderful American Mocking Bird is often too noisy.

The delicious scent of the flowers of *Magnolia fuscata*, with its compound of Strawberries, Pine Apples, Vanilla, Bananas, &c., ceases in a moment at given hours; the valve of the tube that conveys it to the air is stopped as surely as water is shut off by a hydrant's spigot. Can any one explain this curious phenomenon, and who has observed the hour or hours when the change takes place?

Again, there is a yellow flower that gives off an explosive gas at sunset. What flower is this; and who can discourse of it?

What is a horticultural cat? is thus answered: It is a contrivance for utilizing cats as a police force in the garden. A wire is stretched across the vegetable or strawberry bed, and upon the wire slides a ring. A cat is then caught and collared and a small wire attached by one end to the collar of the cat, and by the other end to the

ring running upon the long wire completes this apparatus. It is found that a cat thus fastened can run fore and aft with perfect freedom of movement, and frightens birds in a manner to which no stuffed cat is equal. Better for the gardener than amusing for poor puss.

Some of the papers like to get up imaginary correspondents, for the purpose of getting in some bit of knowledge they have just picked up, thus:

Henry. The aromatics, especially the frankincense of Arabia, occupy the twelfth book of Pliny. The great poet, Milton, in *Paradise Lost*, introduces in a simile, the spicy odors that are blown by the north-east winds from the Sabeian coasts,

—"Many a league;
Pleased with the grateful scent, old ocean smiles."

X. Y. Z. Yes, houses have been built of rock salt by the Chaldeans. You will find it stated in *Gibbon's Roman Empire*, Vol. 9, page 226, Milman's London edition.

William Coxe, some time mayor of Burlington, N. J., it is believed, published the first American book on Fruit Trees, a handsome octavo, still an authority. An enthusiastic lover of fruit is now engaged in cultivating all the trees named in that work. He is an enthusiastic Massachusetts lover of good things, and fruit especially.

ARE PLANTS FED THROUGH THEIR LEAVES?

BY MANSFIELD MILTON, YOUNGSTOWN, OHIO.

It is not always the person who has the largest experience in any particular branch of industry, that is the closest observer and possesses the most knowledge of it in every particular. In the cultivation of plants, Mr. Darwin's experience has been but limited when compared with many; but there are few, if any, who know more about the uses and workings of the different organs of plants at the present day than he. There are but very few I think, who following the details of his experiments with the feeding of the different plants examined by him, but will admit that the leaves of plants do something more than merely evaporate moisture.

The experiments also made by Professor Balfour, Edinburgh, assisted by my old friend and fellow laborer, Mr. Lindsay, clearly showed that plants fed through their leaves did increase in weight over such as were only fed through the

roots. These experiments were published in the *Gardener's Chronicle*. Every one knows, who has paid any attention to the study of vegetable physiology, that plant food, before it can be absorbed by either roots or leaves, has to undergo a chemical change; and this change cannot be produced without moisture. A plant, be it ever so great a feeder at the roots of nitrogenous matter, will not absorb any of it if there is not sufficient moisture to produce the necessary change. Leaves cannot absorb any kind of nourishing food more than roots, without sufficient moisture to bring it into a condition suitable for being absorbed through the organs of the leaves. Mr. Henderson's example of the plants in the neighborhood of the bone manufactories not being benefitted, is not very suitable for the support of the theory he wishes to support; the gases passing off from those factories are not in a suitable condition to be absorbed by the leaves. Nor would the plants be benefitted by the roots coming in contact with it under the same condition.

Mr. Henderson's experience in horticultural work has extended over more years than I have been with mother earth; but I think he must surely have written his last article for the *MONTHLY* without much study, when he questions the matter of plants absorbing moisture, and that moist air acts only as a negative benefit; if this were the case, a plant once wilted could not be recuperated by the application of moisture to the leaves; that if it acted only as a negative, the plant would remain the same when moistened on the foliage or brought into a moist atmosphere. Now Mr. H. knows as well as I do that geranium cuttings, for instance, if allowed to wilt, (so long as the organs of the leaves are not destroyed,) then placed in a moist atmosphere will recuperate, and the leaves and stems regain their former plumpness, and get heavier than before being placed in the moist atmosphere. Now I would like to ask Mr. H., if the moisture was not absorbed through the leaves or stems, how was it absorbed, there being no roots?

I have kept several of the *Bilbergias* in a moist atmosphere without any roots, and they have grown considerably. Now if they have not fed through their leaves how were they fed? Please try some of them Mr. Henderson, and I think you will come to the conclusion that there are plants which can be nourished for a good while, although the roots are gone.

THE WILD FLOWERS OF SOUTH CAROLINA

BY MRS. D. W., SUMMERVILLE, S. C.

A friend of yours has kindly sent us this year's numbers of your GARDENER'S MONTHLY which have given us the greatest pleasure, so much so, that I am induced to write about a pineland in South Carolina, little known to the lovers of trees and flowers. For affections of the throat and lungs our climate is truly wonderful. Our Southern people fully appreciate its restorative powers, and many reside here who cannot live on the seaboard, Charleston being our nearest city.

This village is certainly unique, every house built to suit the taste and fancy of its owner, without the slightest consideration as to effect or order, consequently the village covers a large area. Immense pines tower straight and tall above the cottages, while ever and anon you come on noble groups of Live Oaks shadowing the sandy soil. The white roads meander among the houses and through the woods, crossing innumerable little streams surrounded by swamps filled with lovely trees and flowers. In Spring and early Summer, I mean from March till the end of June, and again from the middle of September to the first of November, there is a constant succession of wild flowers. I have succeeded in bringing many into my garden. A *Styrax* about twenty feet high, with a glossy leaf and small white, sweet-scented flowers blooming all down the stem, is very graceful. An *Andromeda*, I think, with pendant racemes of white bells, each raceme fully ten inches in length, is the most elegant shrub I have ever seen, the blossoms without a green leaf, covering the tree like snow. Another, like a heath, with pink, rose colored, or white waxy bells and a bright shining leaf about a foot high. The *Sarracenias* are now in full beauty, golden yellow, pale straw, deep red, dark brown, yellow with brown throats, crimson hoods, speckled with white, pale green, touched with white or lined with spots like a snake. Some tall and strong; some slender as a shaft; and others, tiny crimson hoods not longer than your little finger, with pale yellow blossoms with drooping heads beside them.

Why is it you seek foreign countries for your trees and flowers while you neglect the rare beauties of your Southern clime? I fancy the dread of malaria has deterred many a one from searching our woods; but round our pineland we drive with impunity for many miles. For ourselves, a spade, a trowel, and a terrible looking

knife with a rough bag always are ready at the bottom of the carriage; and our coachman does double duty, he drives and he digs.

[The readers of the GARDENER'S MONTHLY will, we feel sure, highly appreciate this brief sketch of South Carolina rural scenery, and would enjoy as many more as the lady may feel inclined to write. It is remarkable that though most of the settled Southern States are among the oldest in the Union, we know less of their gardening, their wild scenery, and of their native flowers, than of the newer portions. Even to the mere botanist the wild woods of the South at this time furnish more new plants than the unsettled portions of the Western Territories. As we write these lines, Professors Gray and Sargent, and Messrs. Canby and Redfield of the Philadelphia Academy of Natural Sciences, are hunting for new and rare species in the Southern Mountains.

Communications from other friends such as this with which we are now favored would also be acceptable.—ED. G. M.]

MYSTERIES OF THE MAIL BAGS.

BY WM. T. HARDING, UPPER SANDUSKY, OHIO.

A few days ago the writer received per mail several mysterious looking packages, bearing the post mark of Ranch, Utah, the headquarters of the famous plant collector, Mr. A. L. Siler. Suspecting what they were, the promised gift of the above named gentleman, I opened each parcel with great expectations, and was well rewarded for my pains.

Familiar as I am with the members of the Cactus family, I was nevertheless surprised with the peculiar features of some of their alliances when first we met the other day. "Well, well," exclaimed my astonished wife, "is it possible such odd looking things exist either here, or in any other land?" Truly may it be said of them, "they are fearfully and wonderfully made." As vegetative marvels they are as strangely fashioned as any of Nature's eccentricities can possibly be, and how natural it seems for the good folk to wonder what they are, and enquire if these are really flowering plants, and from whence they came. They are equally astonished when informed they are natives of this hemisphere, and increase and multiply as well as other individuals of the organic world. And now, Mr. Editor, having

briefly hinted at the abnormal forms under notice, let me add for the information of those less fortunate than you, or I, who have seen and said so much about them that they are by no means floral frauds. When in bloom, their flowers are as gay and beautiful as anything in the vegetable kingdom, and are as easily managed as any plants in cultivation. Admiring them as I do, I can well understand Mr. Sargent's enthusiasm while gazing upon the vast and unique collection of succulents in the great gardens of Kew, England. As I occupied so much space during 1877, in the July, August and October numbers of the MONTHLY, with "The Rhymes and Recollections of a Cactus Man," I must forbear to say any more about them, although I feel sorely tempted to go on. So in conclusion, will only state that between the "vegetable monstrosities" before me, and the fact of their having come safely through the post office there are about equal comments made upon the curiosities of nature and the mysteries of the mail bags.

NOTES ABOUT TREES.

BY ETHEL ALLEN.

The natives of the island of Otaheite, relate a touching legend in regard to the origin of the breadfruit tree. Once upon a time, when there was a famine in the land, a father assembled his numerous children upon the mountains, and addressed them as follows: "You will inter me in this place, but you will find me again on the morrow." So the children complied with his wish, and coming on the following day, as had been commanded, they were astonished to find that the body of their father was transformed into a great tree. His toes formed the roots, his body the trunk, while his outstretched arms were changed into branches, and his hands into leaves. His bald head had disappeared, and a delicious fruit took its place.

The Cedar of Lebanon was not introduced into France until the year 1737, when Benard de Jussieu brought over from the Holy Land a little seedling of this plant, which he had with great difficulty succeeded in keeping alive during the voyage. Owing to severe storms, and contrary winds, the passage was prolonged until the supply of water began to fail. The passengers were each allowed a half-glass daily, and Jussieu shared his portion with his plant, which by this means he kept alive until they reached Marseilles. Having no flower pot he had plant-

ed it in his hat, which strange proceedings so excited the suspicions of the custom house officers, that they at first insisted upon emptying the naturalist's chapeau, in order to ascertain whether or not contraband goods were concealed therein. But Jussieu managed to preserve his precious bantling, and carried it to Paris, where it flourished in the Jardin des Plantes until one hundred years old, and eighty feet high, when it was cut down to make room for a railway.

It would take fifteen men with their arms extended, to embrace the trunk of a boabab tree. Boababs do not attain their full size until eight hundred years old. In the village of Grand Galarques, in Senegambia, stands a boabab, the hollow of which the negroes have ornamented with carvings cut in the wood. Many African tribes entomb poets and musicians in the trunks of boababs, believing them to be in communication with spirits. Sometimes the natives encamp in these enormous trees, and frequently use them as stables.

Near Lake Geneva stands one of the most famous chestnut trees in the world. Ever since the fifteenth century it has cast its shadow over a modest hermitage. Its trunk measures at the base forty-six feet in circumference.

Cos, the celebrated island of the Sporades, contains in the centre of its public square a plane tree whose branches cover the whole park. These branches would have broken of their own weight long ago if they had not been supported by marble columns.

In Nuremburg there is an aged linden tree which was planted by the Empress Kunigunde. In the year 1445 the patrician Philip Pirkleimer was married under this same old tree. Four statues surround it now, representing four ancient emperors of Germany.

Among the highest trees in the world are the marsh gum trees of Van Dieman's Land. One of these attained the height of three hundred feet and yielded wood to the amount of 1,540,758 pounds.

The village of Allonville, France, can boast a most famous oak. It stands in a graveyard, and the peasants from all the country around come to pray beneath its branches. The hollow trunk was fitted up as a chapel in the seventeenth century and dedicated to the Virgin. Above the chapel lives a rustic hermit, while still higher in the tree is a small belfry surmounted by a cross. During the Revolution

ignorant fanatics attempted to burn the chapel oak, but the inhabitants of Allonville and its vicinity turned out in arms and protected it against the vandals.

EDITORIAL NOTES.

EDITORIAL TRAVELING NOTES.—I love New Jersey. It is fashionable to joke about her. Some tell us she was made of the pieces left from the manufacture of other States. It is true there are scenes which you can find in any State of the Union. There are cool mountains, and hot plains, excellent wheat lands, and soil so sandy and warm that it is only fit for sweet potatoes. There are places dry enough at least for the most successful grape growing, and then there are cranberry bogs which yield more than the gold or silver mines of Colorado very often do. Besides its men and women, its gardens and its wild flowers, all are among the best. It is a pretty piece of mosaic work, all the better for being made up of "odds and ends." To one who wants to get an idea of New Jersey, a run of an hour or two by the Camden and Atlantic Railroad will take him clean across it, landing him by the sea at Atlantic City. The writer inaugurated his "season" by a trip over the road when the apple trees were in blossom, and the early peas and potatoes just struggling through the ground. It is wonderful how much may be learned by a railroad ride, and yet wonderful that so few learn anything at all. For my part I never go over this road without learning something new. On this excursion the swamp maple, *Acer rubrum*, was just going out of blossom, and the brilliancy of the maturing seed vessels reminded me of a fact first brought to my attention by Mr. P. Barry, that the further we go south the brighter red these ripening seed vessels become. As we go south-east over this road, we find them increasing in brilliancy. They are no longer red, but scarlet or even vermillion. Another interesting fact is that the male trees are deliciously fragrant, while the female or seed bearing tress are destitute of all odor. We have all known this fact in connection with the *Ailanthus*, the grape, the willow, and others. In all these the male flowers are the ones that give the sweetest odors. Perhaps this fact will forcibly strike those who philosophize on the relation of odors to the insect fertilization of flowers. It is curious to note how young the maple flowers in the New Jersey swamps. Plants not

over two or three feet high are as full of red blossoms as the huge red maple timber trees of the high ground in Pennsylvania. It seems hard that these little things should take on family cares so young. But we know that nature cares very little for the individual. She wants to clothe even a swamp with vegetation, and the maple is forced to grow in a swamp, though it would do better for itself in drier ground.

How beautiful the Lupines look, with their blue spikes pushing up from the dry and sandy banks! Its roots run down to great depths, and bring up the moisture for the thirsty leaves; and we learn that deep rooted plants must be selected for dry surface soil. Thus we find the oak and the tulip tree thriving so well. For street trees thousands of tulip trees have been set out in New Jersey towns during the past twenty years, and none are found to excel them. The chestnut also does well. Indeed any tree which has deep tap roots as well as plenty of surface roots, does well in the dry sands of New Jersey. This is a hint that Western tree planters may thank New Jersey for.

The forestry question receives aid from a run through New Jersey. We see that the forestry area is not necessarily decreased by the old trees being cut down. Hundreds of acres of the pitch pine, *Pinus rigida*, have been cut away, and are now covered by thrifty young seedlings. In some cases there are woods which have already been cut within the memory of living people now ready to be cut over again. So with burnt forests. The new growth soon comes, for as heat ascends, the roots are cool, and seeds somewhat buried in earth, escape unless the mass of burning material be very deep indeed. We here see also the value of nurse trees to a growing forest. The scrub oak, *Quercus Bannisteri*, rarely exceeds six feet in height. It makes an excellent shade for the young pines; but in time these grow above their fostering shade, and smother them out, leaving nothing but a pine forest pure and simple. The poplar birch, *Betula populifolia*, also acts the part of an excellent nurse. It grows with great rapidity when young. Some of the growths of last year, as I saw them in these forests were six feet long. But these rapid growths cease at about ten or fifteen years. It is the old story of the hare and the tortoise, for the slower growing and sheltered trees get up in time and crowd out the birches.

Then these forests teach a lesson in thick

planting. Some trees become very large when growing close together; others, as for instance, poplars, soon kill each other when standing near. A poplar is said to grow large and fast, but it must have all the ground to itself to do it. On the other hand the cedars, and especially the white cedar, will make huge stems when so thick together that a party of a dozen persons traveling through a wood of them can scarcely see any one of their companions at fifty feet away, so thickly do the trunks grow together; and yet how seldom is this fact taken into account in deciding what forest tree to plant.

The holly, *Ilex opaca*, which was once the pride of New Jersey, seems to be getting scarce. Though hardy, so far as low temperature is concerned, it hates cold wind, and when the country gets opened a little it suffers and disappears. At Atlantic City the famous old specimens which are as large and have as fine trunks as apple trees a century old, also begin to look decrepid. How they grew up in this bleak and exposed sand bank is a mystery; and as they stood the battle of the seas and the breeze of the north-east for many years, it is strange that they should suffer now. It may be that the buildings forming the miles of streets turn the wind on to the trees on the outskirts of the city with more destructive effect than in the olden days of nature.

The beautiful city with its thousands of handsome shade trees of numerous varieties is a sight to see in a place where but a few years ago it was believed trees would not grow at all. The GARDENER'S MONTHLY always taught that when trees were planted thickly together, so as to shelter one another, anything would grow in this bleak place, and now one can see from experience that this is so.

In gardening also it is pleasant to note that the world moves even at a watering place as well in the direction of trees and flowers as in the line of gas-lit ball-room floors. It is some years since a sketch of things at Atlantic City appeared in the GARDENER'S MONTHLY, and then astonishment was expressed that any persons of taste could be found willing to spend weeks among grand furniture and such miserable out-door surroundings. Now there is a great change. The cottages have sweet and shady vines about their doors and over their windows, and shrubs and hardy flowers abound in the gardens. In many cases excellent lawns were observed, and this in soil which a few years

ago it was doubtful if even a blade of grass would grow. The larger and more pretentious "houses" have much improved in their horticultural taste, but are very far yet behind the needs of the people. In the past, wealthy people spent their summers in the country amidst trees and flowers and nice specimens of landscape gardening. The opening of railroads has brought the seaside to their doors. They may for the moment be attracted by the novelties of the seashore, or the gayeties of fashion, but the love of art and taste, especially in flowers and gardening, is innate, and only those great summer resorts will be permanently successful that give some attention to these things.

HORTICULTURAL LAW.—The law notes of English Horticultural papers furnish curious reading. Here is one man who had some yew trees in his garden, the branches of which hung into the highway. Some one's horse ate some and died thereof, so the plaintiff contended, and sued the owner of the yew tree for damages. The defence was that the horse was a trespasser to all intents and purposes; that the owner had no business to let his horse eat the boughs. The case was "reserved," but the judge evidently leaned to the idea that the yew tree man ought to pay for the horse.

Then we pass to another. A father is sued for \$250 for "button-hole bouquets," sold by a florist to a reckless and worthless young fellow, but a minor. The unfortunate parent plead that under the law he could be held liable for "necessaries" only, but he was adjudged to pay the florist's bill.

NEW PLANTS.—The trade in new plants must be something enormous in England, judging by what we find in two new catalogues before us, issued by B. S. Williams, of Upper Holloway, and Mr. Wm. Bull, of Chelsea. By a casual glance we find that if a person were to order but one of each of the many novelties enumerated in these lists, the bills would run up to some thousands of pounds.

A SEEDLING PLANT.—The daily papers have accounts of a strange plant from Australia which will send animals to sleep for weeks, months or even years, and they can then be awakened to resume life just at the point they left off. It will be a capital thing for insolvent debtors. They can lie away in a box or closet till their importunate persecutors are no more. Rip Van Winkle no doubt ate some of it.

THE PITURY PLANT.—The Peruvians chew the leaves of the Coca (*Erythroxylon Coca*), and can live without food for days. The natives of Central Australia have a plant they call "Pitury" which has similar properties. Baron Von Mueller finds it to be obtained from the *Duboisia Hopwoodiana*.

THE SOUTHERN STATES OF NORTH AMERICA. The *Gardener's Chronicle* frequently refers to "The Southern States of North America." This may mean any part of the North American continent south of the St. Lawrence or the great lakes. In the geography of plants accuracy is of great importance, and our esteemed contemporary should say the "southern portions of the United States" when it means that a plant is growing in Florida, Louisiana, Texas, or contiguous territory.

MAINE STATE POMOLOGICAL SOCIETY.—Fourth Annual Report, from Geo. B. Sawyer, Wiscasset. In our last year's notice we referred to an interesting feature, the publication of plans of existing small gardens. This is continued here; a plan of the house and grounds of the late Dr. J. C. Weston, of Bangor, being given.

FLOWERS AND FERNS OF THE UNITED STATES.—The editor of the *GARDENER'S MONTHLY* would be very thankful to any friends who may chance to have seeds of any native flowers that may possibly interest him, in order to grow for artistic subjects for "Flowers and Ferns." Only a few seeds or a root or two are necessary. All the drawings for this work are made from nature; so where specimens direct from wild locations are not at hand, the only chance to take them is to have the plants growing.

A POPULAR CALIFORNIA FLORA.—By Volney Rattan, San Francisco, published by A. L. Bancroft & Co. The flowers of California have been described in so many different and generally inaccessible works, that it is no little trouble for any one to learn the histories of the plants he finds. In this only the polypetalous and gamopetalous exogens are described, and of these the umbelliferæ and compositæ are omitted. Still it is the only cheap work accessible to students of the California flora, and is therefore valuable so far as it goes.

DICKENS' DICTIONARY OF LONDON.—Published by McMillan & Co., from Claxton, Remsen & Haffelfinger, Philadelphia. The

hundreds of Americans who go to Europe every year use much time in hunting about for the best things to see. They buy "guide books," but half the things thought to be important by the guide maker are of no consequence to the average man or woman. In the writer's own case he cuts loose from the guide books, and thus generally finds himself in interesting places where no one else has been. For instance every guide book tells "every visitor to see Covent Garden Market," but no word is ever said of Clare Market, not fifteen minutes walk away. The writer of this stumbled on it early one Sunday morning in his recent London experience, and, as the market of the very poor, it is well worthy of a special visit to London to see. Yet a distinguished London gentleman to whom we related our adventure had never heard of the place. If we had access to this "Dictionary" it would not have been by chance that we had this extremely interesting experience. This book is valuable in this, that it gives full accounts of everything—nearly every thing—that can possibly interest the stranger, and he can thus be his own guide in selecting where to go and what to see. Even those who never expect to see London will derive much satisfaction from reading about the many things others may see there.

MOORE'S RURAL LIFE.—Mr. D. D. T. Moore, well known as the very successful originator and for many years the editor of *Moore's Rural New Yorker*, is now at the head of a new venture, with the title above. It is of a very high class in its aims, and yet at the popular price of fifteen cents per month. In looking through the first number we were glad to note a tribute to Mr. F. J. Scott's "Suburban Home Grounds." We have regarded this as one of the finest works on landscape gardening ever issued in any country, and are surprised that Messrs. Appleton should suffer it to be comparatively dead on their shelves. A portrait and sketch of the home of Bryant will be welcome to the lovers of this beautiful poet, and from which we extract the following, which will have a special interest for our readers:

"Mr. Bryant took more interest in arboriculture and gardening than in farming; hence the place contains a large collection of rare and beautiful trees, both deciduous and evergreen, such as are not generally seen on more elaborately laid-out places. He considered that a country place was made for enjoyment and not for show; hence Cedar-Mere was but little

known beyond his own immediate circle of acquaintance. It is a great pity that so many are not of his discerning taste in such matters; if they were the love of rural life would greatly increase among us, much to the benefit, both physical and mental, of those who, as he did, have to lead a life of excitement and energetic application to business in our crowded cities. The recreation and relief from care which Cedar-Mere and Cummington afforded him no doubt prolonged his life and enabled him to sustain his remarkable physical and mental vigor."

MR. J. T. LOVETT.—This gentleman, formerly with Messrs. Asher Hance & Sons, has entered business on his own account at Little Silver, Monmouth Co., New York.

SCRAPS AND QUERIES.

COLLECTING ORCHIDS.—We are in receipt of numerous letters from persons who want employment in collecting Orchids in Brazil, and in South America, or who have brought collections and wonder where to sell them. With our increasing close relations with these countries, we suppose there will soon be enough for all demands.

THE FUCHSIA ILLUSTRATIONS.—Mr. Grieves says: "I regret to say that the Printer has made me say the reverse of what I intended. Instead of Cannel's Lucy Finnis being as your figure (1), it is as figure (3), as figure 3, represents a fac simile from his cut. While figure (2) represents the natural size of the (type) cut figure (1), which is a fac simile of the former cut in *GARDENER'S MONTHLY*."

[It is but justice to say that the error did not occur at the printing office. The figures were placed on to accord with the MSS.—ED. G. M.]

LETTER FROM WASHINGTON TERRITORY.—Mrs. Fanny E. Briggs, writes: "There is an

error in my last letter in the *GARDENER'S MONTHLY*, which I should be very glad to see corrected. It is on page 121. What I wrote was this: 'Who is it that sings of a clime,

'Where simply to feel that we breathe, that we live,
Is worth the best joy that life elsewhere can give.'

I think I may have written the words 'that we live' above the remainder of the line to save space, and that this was the cause of the mistake. If you will kindly correct this time, I will be more cautious in future."

[The error came about, as our correspondent supposes, from her own interlineation. The compositor was excusable this time, though he is often guilty of innumerable sins.—ED. G. M.]

"A DEPARTMENT OF 'NOTES AND QUERIES' is good, why not also open a 'Department of Exchanges' whereby I can exchange the seed of *Yucca filamentosa* for *Dahlia* bulbs with some one having a surplus of the latter? I hear a regular newspaper is chiefly sustained in England, on Exchanges. If the 'Barbarians' cut our Park Hemlock for Easter greens the gentleman had better duplicate his gift of 10,000 evergreens so as to have enough to spare."

[In the first place we have no room in a small monthly magazine for such a department; and secondly, we are not sure of the propriety of compelling thousands of persons to read what might perchance interest but a few score. We have now a place for "Queries;" but we may give this space on the principle that the question with the answer may possibly interest the majority of readers. Exchanges would only be for individual benefit, and should properly be found in the Advertising Department. The individual who wishes to exchange *Yucca filamentosa* seed for *Dahlia* roots, seems to us on precisely the same footing as one who wishes to exchange a sugar maple for a dollar; that is to say, he should advertise.—ED. G. M.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

NORTH TEXAS POMOLOGICAL SOCIETY FOR 1879-80.—Officers: President, H. Tone; Vice-

President, Jesse W. Bell; Treasurer, W. Robinson; Secretary, T. V. Munson; Executive Board, H. Tone, G. Alkire, Z. P. Stoneman, C. C. Burns, J. W. Bell.

ESSAYS AND DISCUSSIONS AT HORTICULTURAL MEETINGS.—Most of our societies now have in connection with exhibitions, short essays of fifteen minutes or so on some practical questions of general interest. At the March meeting of the Maryland Horticultural Society, Mr. Pentland read an essay on window plants which was highly appreciated. At one of our local societies the professor of Botany expatiates on the popular features connected with any of the plants on exhibition, and attracts many who would not otherwise attend.

PENNSYLVANIA HORTICULTURAL SOCIETY. The June "reception" by the ladies of the Pennsylvania Horticultural Society was attended by a frightful storm, but in spite thereof, a goodly number of Philadelphia's best citizens attended it. Premiums were offered only for roses, strawberries, and cut flowers. Of the last there were numerous tasteful specimens of art from many of the leading florists of Philadelphia. In strawberries the chief attractions were supplied by Judge Parry, and F. F. Merceron, in the Sharpless Seedling. These were very fine, and did good justice to its reputation. Miner's Seedling, was meritorious in size and flavor.

PREMIUMS AT STATE FAIRS.—Referring to the forthcoming exhibition of the Pennsylvania State Agricultural Fair, a correspondent says:

"They do some things better in London in the matter of prizes for an agricultural fair, and set us an example, we can well afford to follow. At the agricultural exhibition to be held in London, in July next, over \$60,000 will be offered in prizes, and about \$200,000 is being raised to conduct the enterprise. Our railroad companies and business men will do well to make a note of the above item and gauge their efforts for promoting the success of the State Agricultural Fair to be held at the Permanent Exhibition on that basis. We thus see that there are other methods besides a protective tariff which England uses to bring her industries and general productiveness up to the highest standard."

[We must say as we have so frequently said of late, that our exhibitions must be modified in their management before they will be popular as they once were. They have stood still while the world has moved, and especially is this so in the matter of premiums, which ought in these days to be awarded on intrinsic and not on comparative merits.

Exhibitions are for the purpose of encouraging the highest skill, and in order to accomplish

this the managers desire to make it—first, the interest of people to exert this high effort for excellence; secondly, the interest of people to exhibit the result of these efforts at excellence; thirdly, the interest of every body to see and to hear of these results.

In the olden times when people read little; when they had to go to see in order to learn; when there were but one or two great exhibitions which they had the chance to attend, then there was no difficulty in getting good things to show, and plenty of people to look at them. But now the printing press is the great educator, and people already know all about the things they expect to see. The average exhibitor would give more for a ten line puff in a powerful newspaper than for all the advantage possible that could accrue from the trouble and fuss attendant on an "exhibit." But if the managers of exhibitions were to enlist an intelligent press in their behalf; were to employ the best literary talent to write out and explain the merits of the articles exhibited; were to employ the most intelligent judges capable of distinguishing intrinsic merits of these exhibits as discerned by these judges and displayed by the intelligent secretaries, there would then be an inducement for the best skill to exert itself on the best of productions where they would be adequately honored. And if to all this, handsome rewards would be added in the shape of money, medals, plate or certificates, so much the better.

At present all that John Smith can hope for is for three good men and true to assert that his pig is a better one than John Brown's, and that he is entitled to a couple of dollars for bringing it before them, and he may, perhaps if the local newspaper is generous, see in its columns a line read "first premium for pig, John Smith." After all this, if he is a business man, he may spend a hundred dollars in advertising that his "pig took the first premium at the Jones-town Fair." But every business man knows that he could get a certificate of the excellence of that pig from Judge this, or the Reverend that, without all the fuss of an exhibition, and at a hundredth part the cost, and so he does not take his goods to the fair. In hard, solid logic "it does not pay."

We fancy, however, that our people will go on as before for some years yet, and wonder "why exhibitors do not come out?" as they have been doing the few past years.]

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

The many beautiful effects that may be produced by Coleus and other leaf plants, are not to be overlooked; but the pleasure which hardy flowering plants give is more fully recognized with each succeeding year, and our readers value lists of such things as will do in the full sun, as well as of those which will flower or in other ways look ornamental under the shade of trees, where above all other places the American loves to have his Summer garden. A large number of beautiful plants do not like the hot sun; at least they do not mind the hot sun so much on their leaves and flowers, but they do not like the parched and sun burnt earth. If only the soil be shaded with moss or branches, many will do, that otherwise would not grow at all. But there are some kinds which do not care how hot the sun shines on the ground. They thrive for all, and we write this with a vivid remembrance of some we have seen the past hot July. Among these Delphinium formosum and Spiræa lobata were particularly handsome. All kinds of Centaurea thrive; and the Lilies, if only the soil is cool enough, they will be among the loveliest of Summer-blooming plants. It is best to save a few seeds of the most desirable of hardy plants. The frequent dividing of the main roots is not favorable to good bloom. Lilies should be reset

as soon as they have done blooming, and the leaves have begun to fade, and this is true of all hardy Summer-flowering bulbs.

If the trees can be had near home, and not have to be brought from a distance to dry the roots, the latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evaporation, and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cold Autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the operation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue, which in September and October is very likely, one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist it soaking in. After being well watered, the loose soil should be drawn in lightly over the watered soil which will then aid

in preventing the water from drying out soon again.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till next Summer. Last Spring, and in the Summer, when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.

It is a pleasure to note the growing style of gardening favors a distinctively American one. Europeans cannot have the things we have, and we may as well avail ourselves of these, as to be copying inferior ideas from them. We are quite sure that much more satisfactory gardening than this can be made out of nice green grass and comfortable shade trees—clusters of clematises and other flowering vines that defy our heats, and masses and designs of shrubs and dwarf colored-leaved plants, with hardy herbaceous plants mixed. And then there is the great American idea underlying all this—most beautiful grounds maintained at little cost. It is a very good time to think of these things. Autumn will soon be here, when they can be put into shape for the next season. Even where one's gardens are small, and there may be room for but few things, these few will be the more beautiful for a little care in selection, and a little taste in arrangement. It is this care which is the chief pleasure in the art of gardening.

COMMUNICATIONS.

PROTECTION TO TREES.

BY ISAAC HICKS, OLD WESTBURY, NEW YORK.

It certainly is trying to our tempers after we have planted our trees and bedding plants to have them upturned by cattle or scratched out by an industrious biddy. To guard the trees and hedges from the outrages of cattle we use barb fence wire. Where there are evergreen hedges liable to attack, one strand is sufficient, extended from posts set twelve feet apart, and one trial will cure any cow. For single trees, a piece of barb wire looped around the lowest branch and

twisted loosely around the tree two feet from the bottom and tucked into the coil will last for years, and as the tree grows can be easily enlarged. Single specimens of evergreens liable to attacks from cattle require four or more posts around the tree and the wire will be much less conspicuous than boards; as iron posts are sold cheaply they could be used, and painted green and would scarcely be noticed. Many are deterred from planting out bedding plants—such beautiful objects on the lawn or the smallest dooryard—from the proclivity of our domestic fowls for investigation. We use galvanized wire netting; meshes may be two inches, and supported by small posts. This year shall use iron rods three to four feet long, of a size that will not easily bend, half inch, and although a fence around a flower bed glowing with beauty detracts from the effects, still it is better than to have either no flowers or no chickens. Elevated boxes covered with bark look very rustic and ornamental, but the boxes soon decay and the bark soon requires renewing. For two years we have substituted kerosene or petroleum barrels sawed in two and painted a pretty red, and if put under cover will last a long time.

MANAGEMENT OF LAWNS.

BY W. H. COLEMAN, GENEVA, N. Y.

Your remarks on lawn culture in the June number no doubt deserve the premium you so modestly claim, but I wish you had added a few words on how to secure a good "first catch" of grass in making a lawn. What with our swashing Spring rains and weeks of May drought the seed is either washed away before it sprouts or the tender blades are burnt up, and on the dead levels in shady corners show an even green while the body of the lawn grows patchy and uneven. I have thought that a thin covering of straw would be a good thing, retaining moisture and excluding heat, but very untidy would be the looks of it. Then, if you have a good growth, another trouble arises, you mow it once a week and just as it is looking its prettiest another drought comes along, the tender roots of your young grass can't stand it and they begin to die out. I find by experience that you are right about late cutting and the use of coarse manure. A new-seeded plot of last year was unintentionally left without Winter covering, and I was surprised to find so much of it coming up this Spring, which at first seemed utterly dead. We have had a

very severe drought lately, and all the old grass plots lost their color and looked as sere as in August, while my new plot kept green and fresh through it all. There was a great deal of white clover in it and perhaps the shading of the soil had a good deal to do with the freshness. Sodding is slow, costly work, but in our uncertain climate seems to be the surest, quickest means of getting a compact even sod. Can you give us the surest and quickest method of sodding?

EDITORIAL NOTES.

ENCOURAGEMENT FOR ROSES.—As we write the competition for the Rose Premiums of the Massachusetts Horticultural Society is in order, and ought to bring out rivalry. \$150 in a silver cup for the best twenty-four hybrid perpetuals is worth trying for. In the shape in which the society offers this premium it is different to the old ways of doing things, for the winner of this premium is likely to be well advertised.

LILIUM PARKMANI.—This beautiful lily, raised by Mr. Francis Parkman, of Boston, between *Lilium auratum* and *L. speciosum*, is the subject of a beautiful colored plate in the London Garden. The color is much like a very rich tinted *speciosum*, but the flowers are about nine inches across, and in other respects like *auratum*.

HYBRID AQUILEGIAS.—These are so numerous now that botanists already do not feel sure they can tell a species from a variety in the Columbines.

BOSTON PUBLIC GROUNDS.—Boston papers are giving great praise to Mr. Doogue, "City Forester," for the good work he is doing for that city.

CARE OF GARDENS.—In our travels the prevailing weakness is untidy places. In many cases there is evidently more garden work to do than workers to do it. In others the suffering is from bad management. If there were a dozen at the work there would be little more improvement; for some men are so constituted that they cannot keep ahead with their work. But we are satisfied that great numbers of good gardeners have too much expected of them, and that this is the secret of many slovenly places.

AMERICAN SWEET SCENTED VIOLET.—It is remarkable that though we have numerous

species of violet in this country, very few are scented. The *Viola primulæfolia* is exceptionally sweet, and is worthy of the attention of florists with a view to improvement. This species grows far North, having recently been found in Canada.

FORSYTHIA SUSPENS.—This beautiful shrub is not as well known as the older *Forsythia viridissima* or Golden Bell, but it is capable of making a much finer effect. If the central stem is trained to a pole or stake it will reach a height of ten or twelve feet, and the slender pendulous floral branches make a very pretty effect amidst the mass left to grow at will at the base.

SEDUM ACER AUREUM AS A CARPET PLANT. Visitors to the Chiswick Gardens of the Royal Horticultural Society will perceive that Mr. Barron has used this most useful Winter and Spring decorative plant in a very serviceable way by employing it as a carpet to Irish Yews, *Thuja aurea*, and other plants of a similar character which surround the rockwork. The *Sedum* flourishes in such a position, and the April showers alternating with bursts of warm sunshine cause the Stonecrop to flash up with an unwonted brilliancy of color. The dense deep green of the Irish Yew appears to assume a deeper tone against the golden ground below it. One wonders this charming *Sedum* is so seldom met with. Were it now introduced for the first time it would no doubt become very popular.—*Gardener's Chronicle*.

SCRAPS AND QUERIES.

CURIOUS DWARF ROSE.—Mrs. M., South Haven, Mich., says: "I send you to day a rose flower. Is it new or old? It appeared this season for the first time among some hybrid perpetuals in a friend's garden. It is a very double flower, and of fine form when fresh, but remarkably dwarf in stature as far as the bush is concerned."

[It is certainly a hybrid perpetual, and we know of no dwarf among this class. The flower was delightfully fragrant.—ED. G. M.]

JAPAN MAPLES.—Mrs. L., asks: "I would like to enquire about the Japan Blood-leaved Maples, whether they grow to be trees of twenty and thirty feet, or whether they are mere shrubs?"

If as handsome as the Purple Beech they are destined to become more widely known."

[They will never grow to the size of the Blood-leaved Beech. It is probable they are rather strong shrubs than trees and "twenty to thirty feet" will probably be their utmost limit.—ED. G. M.]

INSECTS ON ELM TREES.—Rev. J. I., Salem, N. J., writes: "I was deploring in Philadelphia the other day to a friend the probable loss of some beautiful elm trees in our church yard, when he said at once, 'why do you not write to the GARDENER'S MONTHLY? The editor will tell you all about it.' Adopting his suggestion, I write. These trees are large and for two or three years have been sickly. The first evidence of disease is seen in the bark of the trunk which leaks the sap in large quantities. The bark becomes saturated from the upper part, from five or six feet from the ground, to the breadth of six or eight inches. Then the leaves wilt, droop, and drop. They re-leave, but show signs of weakness. The ends of the limbs die and so do our hopes. Two or three of our trees are in this condition, and this Spring another one is beginning to leak. If you can suggest any remedy, you will confer a very great favor upon our congregation as well as upon all the people of our little city who admire beautiful things. I shall be very glad to hear from you, and whatever suggestions you may make shall be carried into effect if within our power."

[We are not able to help our correspondent much on this occasion. The exudation is probably from the work of some wood-boring insect. In this case it may be traced by running in wire and crushed. The falling of the leaves in Summer, after they have been skeletonized by the elm slugs is another matter, and there is no known remedy for it.—ED. G. M.]

INJURY TO TREES.—H. W. S. says: "I send you enclosed a few specimens of this year's growth of Deodar Cedar, Scotch Larch, Golden Norway Spruce and the American Hemlock, and also Mahonia, as representing more or less almost every evergreen and many deciduous trees on my place, the result of some unusual atmospheric or electrical effect from the hot weather recently. Even trees in the shade and fruit trees (plums especially) under glass are equally effected. I have one large Norway Spruce sixty to seventy feet high in a group of three, perfectly drab in color, while its two com-

panions are untouched. Many White Pines and entire Hemlock and Norway hedges are more or less scorched or blasted, and of course disfigured for the season. *Abies Parsonsii* or *lasiocarpa* seems particularly sensitive. Every year this neighborhood is liable to this attack, and of course it is impossible to contend against it. I write this simply to know if other persons are similarly effected. With me it has become such a serious matter that it is a source of great discouragement.

In connection with this annual misfortune, there is another disheartening thing. The sudden and inexplicable dying off of fine healthy plants of *Clematis*. You leave them at night in perfect health, apparently, to find them next morning dead or dying. A prominent nurseryman wrote me this fatality in *Clematis* made a difference of \$500 a year to him. W. Jackman writes me they suffer equally in England. It seems equally uncertain to plant *Clematis* in pots or the ground, they are sure to go sooner or later. I should say a third, certainly a quarter of every collection disappears every year in the Summer, no matter what treatment they receive whether coddled or neglected.

We have this year had a curious epidemic in *Arbor vitæ* hedges. Most of the hedges whether old or young, are killed or nearly so, while the more tender evergreens are uninjured."

[It will certainly be interesting to know if others have suffered as H. W. S. has. In this part of the world, Philadelphia, we have nothing like it. In past years hedges of Hemlock and *Arbor vitæ* severely pruned, have had their leaves mildewed, the appearances being much as in the specimens sent; but the remedy to let the hedge off with less pruning the next year has been successful. But it is said that this trouble comes from unpruned trees in our correspondent's case.

The *Clematis* trouble is an old one, and has before been noted in our pages, but it was not known to exist also in England. There are two enemies to it here; one is an insect very similar in its effects to the phylloxera. The roots are all granulated and destroyed as they grow, as in grape vines similarly infested. The plants "dwindle away" in this condition. The sudden deaths come from a huge borer. Some years ago the Editor sent specimens to Prof. Riley; but does not remember what Mr. Riley made of them.—ED. G. M.]

NOTES ON GARDEN PLANTS.—F. H., New Bedford, Mass., writes:

"1. I send you to-day a specimen of double daisy, *Bellis perennis*. I never saw one with quilled petals before; did you? I fancy it is something entirely new: is it?"

"2. I enclose a slip from a plant; I do not know the name of. Please give me its name, habits, &c.

"3. Also put in a leaf of a plant for name. Blossoms red in June.

"4. I have a bed of Ghent Azaleas situated where it gets the sun only from seven to eight and eleven to two. There is a good circulation of air under the trees where it is located; the soil is porous and drainage good. I fancy they would do better with less shade, perhaps not, however. Please tell us the taste of the lovely Azalea in this matter.

"5. I would like a description of the *Retinispora*; its habits, height, breadth and general appearance.

"6. I have excellent success in transplanting fruit and ornamental trees, shrubs, plants, &c. Have made two efforts with Chinese Magnolias and failed in both. I don't intend to give it up, that doesn't run in the blood. Do nurserymen ever send them out with a ball of earth attached as with *Rhododendrons*? At what stage of growth and what size is best for transplanting?"

"7. You will find in the package a piece of a shrub with buds attached. A man who has charge of one of our cemeteries handed it to me; says he found a number of the shrubs in an uncleared portion of the grounds, doesn't know its name and can't find any one that does. Blossoms early, buds turn red."

[1. Quilled English daisies are not uncommon.

2. *Cryptomeria Lobbii*, probably. It is too small a slip to be certain about it. It is scarcely hardy at New Bedford.

3. The "piece" of a leaf, probably came from the Oriental Poppy.

4. If the soil is made of a porous spongy material, so that it is always cool but never what a gardener would call wet, the more sun the Belgian *Azelea* gets the better it thrives.

5. There are many kinds of *Retinispora*, and their habit is like unto a slender growing *arbor vitae*. There are however some of these that are abnormal forms that have retained their juvenescent character through life,—imbeciles; these look like heaths. There are *Arbor vitæ* which are in this imbecile condition as well as *Retinosporas*, and "Tom Thumb" is a well-known instance.

6. The better class of nurserymen sell trees with balls of earth. But this implies that the plant has been transplanted several times or it will not come up with a ball; and more labor to preserve the ball; and hence they charge about double the price for such trees, to those which are simply known as catalogue trees. Magnolias love to have their weaker shoots cut away on transplanting.

7. *Daphne Mezereon*.—ED. G. M.]

THE BEST TIME TO TRANSPLANT TREES.—A Shellburne Falls, Massachusetts, subscriber asks whether it is best for her to transplant trees in the Fall or Spring. It is very much a question of exposure. If in a very cold windy place trees will suffer as much from Fall planting as they would from the hot parching sun after Spring planting. In the eastern part of Pennsylvania the risk, and there is always some at any season, is considered about equal, and there are nearly as many things transplanted in October and November as in March or April; not quite so much, but if less, because when April comes people hurry up for fear of missing a season of growth. If there is much danger from very cold drying winds after transplanting in the Autumn, this can in a measure be helped by pruning the weaker branches if a deciduous tree, or by protecting from wind by branches or corn fodder if evergreens.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Ferns will be about maturing their spores at

this season, and as they are seldom of any value to the plant after this, they may be cut off at once, and this will hasten the growth, and help

the appearance of the plants for use next Winter. Some people like to have Cinerarias, Calceolarias, Pansies, and similar things in their greenhouses, and follow the English practice of sowing in September. But this is rather late for our climate, and August is a better month.

August and September are often taken as the time to repair plant houses and build new ones. A few hints in connection may not be out of the way. Summer heat shrinks wood, and very often loosens glass, and makes leaks, through which water drips in Fall and Winter most annoyingly. This is worse when there is putty. This is used now only to lay the glass in. The glass is pressed down on it, tacked down by brads, and only painted on the outside. The laps of the glass should be as narrow as possible and white—not dark—paint used. Never use dark paint or dark material about the house if possible, and most positively avoid tar.

Water tanks collecting rain from the roof, can often be introduced to advantage. Where the earth is solid no stone or brick need be used. Put on a thin coat of mortar, say a quarter of an inch, and on this a coat of cement about as thick as a sheet of brown paper. The thinner the cement coat the more chance of its being waterproof. We have known one barrel do for one thousand square feet of surface, and be as impervious to water as glass. For large ranges of glass there is nothing that equals hot-water pipes for heating. For small greenhouses well constructed flues answer. Flues should be near the ground but never touch it. If there are cracks in flues, permitting the passage of smoke and gas, it is no use to plaster over it. Work out the whole mortar near the crack—that is, make the hole larger, and fill in with new mortar. Never paint or whitewash flues. A flue of any length, even on a dead level, can be made to draw by building a fire at the end of it. By this we rarify the air, making it lighter, and the heavier air rushes in at the furnace end to take its place. A close reflection on this fact will always enable one to build a flue that will, to a dead certainty, draw well. There is no excuse whatever for a badly drawing flue. In small bay windows, fitted up for plants, close curtains may be drawn across to cut off the atmosphere of the room; and if double glass be used for the windows, or the window itself be in a sheltered place, a good oil lamp or two will generally suffice to keep out frost.

COMMUNICATIONS.

ABUTILONS—SPECIES AND VARIETIES.

BY MR. J. GRIEVES, SEC. GREENBROOK AND PATERSON NURSERIES, N. J.

Your correspondent C. E. P. asks as to the difference between *Abutilon mesopotamicum* and *A. vexillarium*. *A. mesopotamicum* as I understand it, bears scarlet and yellow flowers; is of a drooping or semi-trailing habit, growing to the height of three to four feet, with plain green leaves. I find it described in the supplement of Paxton's Botanical Dictionary, new edition, 1868, page 599, as bearing scarlet flowers, etc., and is referred to *Sida Bedfordiana*, its synonym, and where a similar description to that in our catalogue is given. In the same supplement where this is described, *A. vexillarium* is also named, but as explained, comes under "the new genera upon which no remarks are given, they having either not come under the Editor's observation, or were too little known for him to venture to speak of them with confidence." I do not know where *A. vexillarium* originated, but I saw it for the first time at the World's fair at Vienna, amongst many other fine Hybrid Abutilons raised in continental gardens. It was the poorest of this class of Hybrid Abutilons; all being improvements on it, notably: *vexill. brilliantissimum*, *vexill. carmineum*, *vexill. elegans*, *vexill. grandiflorum*, *vexill. venosum*, *vexill. floribundum*, *vexill. aureomarmorata*, the latter being the newest although not the finest. I imported during the two following Summers all of the above, and have most of them on hand yet. I found them all near Vienna, at a small town called Heitzing. These are the names I bought and imported them under; and I can assure C. E. P. that *A. vexillarium* and *A. vexill. brilliantissimum* are not improvements in name only. I herewith send you a leaf of both and four others, and a translation of the grower's description which we find well borne out. "*A. vexillarium* flowers yellow with dark reddish and blackish brown markings. *A. vexill. brilliantissimum* flowers brilliant salmon red, shaded and marked with dark rose, making a very rich effect, a striking variegated free flowering variety." I also add the translation of two more of those named above to give a better idea of this group, viz: *A. vexill. elegans* flowers carmine shaded with

salmon red, marked with dark rose-colored veins. This variety blooms during the whole year. *A. vexill. venosum* flowers a brilliant orange shining gold color, with purple red veins, purple in the centre, extraordinary large and splendid flowers, extremely fine variety. I regret I cannot send you some of the flowers, but send you the leaves to show the difference in them.

NOXIOUS INSECTS.

BY G.

There are a great variety of insect pests that infest plants, but green-fly and red-spider are most to be dreaded by the window-gardener. Here, as in most other cases, "prevention is better than cure," and if plants are regularly syringed or sponged over with clean water, there will be little fear of insects troubling them. If green-fly makes its appearance on roses, geraniums, or other plants, it can be syringed off with clean water, laying them on their sides to prevent the roots becoming soddened with water.

If plants are allowed to get too dry, or are watered irregularly, they are liable to become infested with red-spider, a minute pest, resembling a red cheese-mite. This is specially apt to make its appearance in hot dry windows, and soon renders itself apparent by the leaves turning a rusty brown. Constant moisture is the best cure for it, or plants may be sponged over with soft soap and water. It often attacks *Dracænas*, but may be prevented by sponging the leaves with clean water every three or four days. For worms in the soil, lime-water will soon dislodge them; they must be picked off and removed as they come to the surface of the soil. This is rather beneficial to the plants than otherwise. The following decoction is useful for the thrip, red-spider, or green-fly: "Boil an ounce of quassia-chips in three pints of soft water, and either dip the plants or sponge them with the solution after it becomes cool." We have repeatedly tried this with the best results. If green-fly exists only in small quantities, the fumes from a pipe or cigar will soon settle them, care being taken not to burn the plant in the operation. The best of all remedies against insects is to prevent their appearance by cleanliness, a liberal use of fresh water, and abundance of fresh air during favorable weather. Plants in close or Wardian cases seldom become

infested by insects, owing to the moist and genial atmosphere which prevails in those elegant contrivances.

EDITORIAL NOTES.

WASHINGTONIA FILIFERA.—The Washingtonia of Kellogg, as applied to the mammoth tree of California having failed because the distinction between it and the prior genus *Sequoia* not being maintained. Wendland a noted authority on palms now proposes this for the *Pritchardia filifera*, the famous palm of the Colorado River, which he contends from recent examinations is not a *Pritchardia* at all. This palm seems unfortunate in finding a home in nomenclature. First it was *Brahia* then *Pritchardia*, and now to be *Washingtonia*.

INCREASING LOVE FOR FLOWERS.—Col. Forney's *Progress* says of flowers in Philadelphia:

"A love of flowers is spreading throughout the whole community with surprising rapidity, and the evidences of this new fondness are seen on every hand. The corners of our thoroughfares are blooming like parterres, tiny bunches of blossoms are offered for sale on the sidewalks, while gentlemen and ladies seem equally ready to follow the pretty fashion of affixing the buttonhole bouquet to their dress. Perhaps one of the happiest results of this popular fancy is seen in the window gardens. Along the crowded and too restricted lines of our great shopping streets, where every inch of room is valued for its capacity of display, and where the many-storied shops seem shutting out the sky, we now see exquisite groups of flowers and draperies of vines decorating the narrow spaces over the windows and awnings, and bringing delicious glimpses of the freshness of growing verdure into the regions of the dry goods merchant. The arid desert of the hotel front now, too, blooms into garden beauty, and portico and window are adorned with graceful plants. This fondness for flowers is partly due to a freak of fashion, but it may also be welcomed as a forerunner of individual enfranchisement in matters of taste. A heavy formality, rather dull than dignified, has too long governed the decorations of our houses, and an ever-increasing diffusion of artistic culture must necessarily spread among the

nation as it becomes generally recognized that beauty of effect can be accepted instead of expensiveness of material, and that inventive talent and artistic taste find one of their worthiest fields of service in adding to the beauty and comforts of our homes."

CHINESE PRIMROSES.—We are glad to see attention given to selecting forms and colors of these popular plants, as there is no reason why there may not be as many kinds with this plant as there are with Cinerarias or other things. Mr. Rupp, of Shiremanstown, Pa., has made special selections, and numbers among his stock the following kinds:

With single flowers—white; dark red, carmine cast; scarlet, or bright crimson; *Punctata Elegantissima*, velvety crimson, and regularly spotted on the edge with pure white; new spotted, lilac ground, with blotches of white, and spotted with pure white around the edge; *Sylvania*, white, and distinctly blotched with bright crimson.

With double flowers—dark red, carmine cast; scarlet, or bright crimson; fern leaved, dark red; velvety crimson, spotted around the edge; lilac ground, blotches of white, and spotted on the edge; pure white.

NEW OR RARE PLANTS.

BEGONIA ROEHLII.—This new species from Mexico is said to be a very distinct character and very beautiful. The flower buds are said to represent the opening of the European Red Poppy, and the expanded flowers are of a beautiful red.

RANUNCULUS LYALLII.—This is a native of New Zealand, and is remarkable for one of the "Buttercup" family in having flowers white and three inches across. It will probably not prove quite hardy in America. It has recently flowered in England in the collection of Messrs. Veitch & Sons.

LOPEZIA CORONATA.—For many years we continued to call attention to the simple but yet rare beauty of the *Lopezia* as a Winter blooming plant. In spite of our recommendation it has been allowed to disappear, and we should not now know where to look for a plant. It seems to have had the same experience in Eng-

land, as we judge from the following paragraph from the *Gardener's Chronicle*:

"The old Mexican *Lopezia coronata* is now to be seen in charming condition at Malshanger Park, Basingstoke, the residence of W. S. Portal, Esq. Mr. N. Keller, the gardener at Malshanger, is using it as a plant for flowering at Christmas, and he has now several examples in full bloom. The plants, which were raised from cuttings in March last, were in June turned out in the open ground for the Summer, and lifted and potted in September. Treated in this way they have grown into large size, and Mr. Keller, being deficient in house accommodation, had to throw some of the largest away. It is not difficult to have plants three to four feet high, and as many through flowering at Christmas. The *Lopezia* is not unlike a *Fuchsia* in its habit of growth, but with much smaller foliage and small reddish colored flowers. After potting in September the plants should be placed in a gentle heat to bring them on into bloom. How many fine old things there are that well deserve rescuing from the obscurity into which they have fallen."

LIVISTONIA AUSTRALIS.—"It is the most southern Palm of the Australian continent, reaching the snowy range in latitude 37° 30' S. when its trunk attains eighty feet in height, and extending thence along the west coast to the Illawarra River, in latitude 34° 45' S. It flowered annually at Kew, in the Spring months, for many years. The fruits received from Mr. Hill, of the Brisbane Botanic Gardens; they resemble specimens brought by Brown, preserved in the British Museum, except in having a thicker and harder pericarp."—*Botanical Magazine*, t. 6274.)

CISSUS ENDRESII.—Most of our readers know by this time *Cissus discolor*, which, a hothouse plant in England, delights to be treated as a "Summer Vine" in the open air of our country. One of the prettiest sights of this class we met with a year or two ago, in a plant trained over the entrance door of the State Lunatic Asylum at Nashville, Tenn. It must have covered a space fifteen or twenty feet high all from a single Summer's growth, and made a beautiful temporary supply for the English Ivy which had been killed by the unusual severity of the Winter before. We have another species now becoming known to our cultivators which was introduced a few years ago by Messrs. Veitch &

Sons, of Chelsea, London, who give the following account of its birthplace and peculiarities:

"A beautiful stove climber, collected for us in Costa Rica by the late M. Endres, with whose memory we have associated it. It is

prominent, and of a reddish color; the upper surface of the leaf has a rich velvety appearance, colored with the brightest green, a deeper shade adjoining the mid-rib and veins; the under surface a reddish brown, the red predomi-



CISSUS ENDRESII.

more vigorous than the well-known *C. discolor*, and larger in all its parts. Its fine large cordate-ovate and acuminate leaves are from seven to eight inches long, with a breadth of six; the mid-rib veins and connecting veinlets are nating in the mid-rib and veins. The newest formed part of the stem and the youngest leaves and tendrils are strongly tinged with crimson. The robust growth of this *Cissus*, combined with its ample foliage, renders it particularly adapted

for covering large spaces or tall columns in a warm conservatory, and where a bold and massive foliage is required."

XANTHISMA TEXANUM.—"A very handsome Centaury-like hardy annual, with golden flowers, discovered in Texas some fifty years ago, and since found by many collectors, but never introduced into European gardens till within the last few years. It was published both in Europe and America, and as a new genus, first as *Xanthisma* by the elder De Candolle in the 'Prodromus' in 1836, and in about 1842 as *Centaureidium* by Torrey and Gray in the 'Flora of North America.' *Xanthisma* is closely allied to the great American genus *Haplopappus*, which extends from California to Patagonia. The figure in 'Marcy's Expedition' is a very bad one, and represents the pappus as two distinctly double, the corolla of the ray as acute, which is owing to the margins being involute in a dry state; it omits the hairs on the achenes, and the minute serratures of the foliage. This plant flowered in Kew in November last."—*Botanical Magazine*, 6275.)

RASPBERRY-LEAVED PELARGONIUMS.—Sweetness and elegance, combined with such freedom of growth and vigor of constitution as permits, without injury, foliage and flowers to be cut in abundance, will always render this *Pelargonium* a favorite; there is, moreover, a smaller variety of it, the leaves of which, from their minute subdivision, are exceedingly elegant. Both kinds grow freely, especially when planted out either in the open air or in the greenhouse or conservatory. They are well adapted for planting against a wall or pillar in some light situation under glass, as the growth in such positions is very rapid and continuous, and, though their lilac flowers are small, the successional way in which they are produced for several months—commencing early in the Spring—adds much to their value. I think, from what has come under my own observation and the information I have gleaned from others, that the variegated *Pelargonium* called *Lady Plymouth* must be a sport from this variety. If my information be correct, this must have occurred some fifty years ago. I have often seen green shoots on plants of *Lady Plymouth*; in fact, we have several now that seem to be identical with those of the Raspberry-leaved kind, *P. Radula*. One need say but little about its culture, as a plant that has held its own for so many years, when so many of its contemporaries, introduced about the same

date, have disappeared, requires no special treatment. It is just the plant for the cottage window, or to plant out in Summer in the little border in front of the cottage.—*E. Hobday in Garden*.

SCRAPS AND QUERIES.

ECHEVERIAS.—Cap, Media, Pa., says: "Will you please give the botanical name of these two leaves in your next issue of the *GARDENER'S MONTHLY*, and to what family they belong?" [These were all garden forms of *Echeveria metallica*.—Ed. G. M.]

STAG'S HORN FERN.—J. S. R., Chicago., Ills., says. "In walking with a friend through her conservatory, our attention was directed to a fern which she said was 'The Stag's Horn Fern,' but which I had always known as the 'Rabbit's



PLATYCERIUM GRANDE.

Foot.' It has furry stems as thick as one's finger, which grow over the surface, and often hanging over the side of the pot, and branch as a stag's horn might do, but I never heard it called by any other name than the Rabbit's Foot Fern. Is this the right name, or is Stag's Horn the correct one?"

[It is not easy to tell what fern our correspondent has in mind, but the description in no way fits the true Stag's Horn, or Elk's Horn Fern. There are two well known species under culture,

one *Platycerium alcorni*, and the other *Platycerium grande*; an illustration of the latter we give with this.—Ed. G. M.]

DALMATIAN INSECT POWDER.—G. B. B., Hillsboro, Highland Co., Ohio, says: "Your May number speaks of the 'Dalmatian Insect Powder.' Can you tell me whether it is poisonous to human beings, so as to make its use in rooms occupied by children dangerous? Also, where can it be obtained? We are greatly troubled by flies and would like to try the powder if it will do what is claimed for it."

[We have always understood that it was one of the merits of Dalmatian powder, and all powders from *Pyrethrums*, that it was innocuous to all but the lower order of insects. But for flies, what is better than the common "fly paper" of the grocery stores?—Ed. G. M.]

PLANTS FOR BACK WALLS OF GREENHOUSES. F. B., Baltimore, asks: "Would you recommend a *Stephanotus* for a back wall of a conservatory? I see it recommended in a paragraph copied from an English paper. Will it do as well here as in English greenhouses? I have room for one good plant."

[The *Stephanotus* does not flower well till it has reached the top of its support, and has made some pendant branches, from which it flowers. It is a nice sweet thing, but hardly adapted to a back wall. In our country it is difficult to keep plants on back walls clear of insects. The *Stephanotus* is particularly sought for by the mealy-bug. We should prefer for your wall some *Scarlet Geraniums* or *Heliotrope* as they are more free from insects, and look gay all Winter.—Ed. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The cherry crop has been more than usually good in most places this year; and even the birds have had to rejoice and seem to sing "cherry-ripe" in every note. But the bird trouble is getting to be a serious one where there are but a few trees; there are few left for the owner, robins and cat-birds getting nearly all. Some people had an idea that when the sparrows came we should see the native birds fall back to the "original forest" which was once in the state of Ohio, but in our case at least, there are more native birds than ever. They must have made a treaty offensive and defensive, for they live with the sparrows in peace and harmony, and are driven away, no not once. We wish they would drive them a little about cherry time. Robins, cat-birds, and the like, do an immense amount of good; from the time the frost leaves us till cherries are ripe they live wholly on insects—friends and foes—and after the cherries are gone they again take to the grubs and caterpillars. But we don't like to lose the cherries. Perhaps we shall have to take to fish netting to keep the birds from the trees and there is the

additional satisfaction of knowing that this is "the way they do it in Europe."

Most kinds of fruit promise well for full crops. It is here that trouble often begins, for trees cannot bear forever on nothing, and many forget to give them food. The wise orchardist has thinned his fruit at an early stage of growth, and will now be looking round for material to fertilize them with. It is not too late to do it yet to advantage. We should surface dress with manure, compost, or rich materials, any time between now and frost; but the earlier the better. There is not much use in putting it on after the soil is frozen. Rains wash its best portions away. As to kind of manure, it makes little difference. If the surface is not disturbed much, the richer the surface soil the better. We have noticed but little difference between animal manure and mineral. Some of the best and healthiest trees we know, stand near the manure heaps in farm yards.

A little trimming is useful to most trees at this season. The blackberry and raspberry may have their tops shortened so as to leave the canes about four feet. Some do this earlier in

the season; but the buds are apt to burst if done too soon. In like manner, pear and apple trees that grow well, but produce no fruit, are benefited by having, say half of some of the young growth cut back. The buds then left are very likely to form flower buds, in place of growth buds for next season. Many take out the old shoots of raspberry and blackberry after they have done bearing, and we have in times past recommended it ourselves; but on further observation, we see very little good, if not positive injury. The partial shade the old stems make, seems rather beneficial than otherwise under our hot suns.

Strawberry planting often commences in August, providing the weather offers a chance. Get the soil in readiness for this chance. Heavy manuring is not good for the strawberry except in very poor soil. Wet soils are not good. But the soil cannot well be too deep. In the field subsoil,—in the garden dig at least twelve to eighteen inches. Strawberries do better moderately close than too wide, some kinds do very well in beds.

After a piece of ground is dug at this season for strawberries, roll it well with the garden roller. When ready to plant, make holes with a dibble, fill the holes with water, and when it soaks away, put in your plant which has been kept in water to prevent wilting. But in putting in the plant do not plant too deep. "Too deep" kills ninety-nine-hundredths of all the strawberries that die in the year from transplanting. "Too deep" is when anything but the small fibres are buried under the surface.

Almost all trees, and in particular the grape vine, at this season will require attention to see that the leaves are all retained healthy till thoroughly ripened. It is not a sign of healthiness for a vine to grow late; on the contrary such late growth generally gets killed in the Winter, but the leaves should all stay on to insure the greatest health of the vine until the frost comes, when they should all be so mature as to fall together. Frequent heavy syringings are amongst the best ways to keep off insects from out-door grapes, and so protect the foliage from their ravages.

Towards the end of the month a sowing of spinach may be made in rich soil, which will come in use before Winter. That desired for Winter and early Spring use is usually sown in September in this region. A few turnips may be also sown for an early crop, but will be hot and stringy unless the soil is very rich.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends in a slight degree to weaken the growth of the plants. Take care also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

At this season of the year, more than perhaps at any other, it is important to hoe and rake between the rows of growing crops. A loose surface soil not only admits the various gases that the roots luxurate in, but it also prevents evaporation and checks a too great absorption of heat, and then, besides all this, the weeds are kept down, and neatness and order reigns. After every heavy shower, if the time can at all be spared, the hoe and the rake should be freely employed.

COMMUNICATIONS.

ASPARACUS CULTURE.

BY PETER HENDERSON, JERSEY CITY HEIGHTS, N. J.

In your July number your correspondent, Gen. W. H. Noble, strikes the right key note regarding the culture of asparagus. Abraham Van Sicklen, of Jamaica, Long Island, is one of the best growers of asparagus for our New York market. He plants very wide, six feet by four for field culture; the first year after planting the asparagus, he plants a crop of cabbage between the six feet lines. The object of the wide planting is to allow the yearly use of manure to the roots, which he applies in early Spring by ploughing as close as practicable from the roots on each side, then applying two or three inches of well rotted manure on, or close to the root, then again levelling in the furrows by plow or cultivator; in this way the crop produced is enormous, and the bed so worked, would be quite as good at the end of twenty years as at four. This, though a little more labor than manuring on the surface, gives the full benefit of the manure to the roots. For private culture the plan of planting might be changed to planting in rows say four feet apart between rows, and one foot between plants, and turning the soil from the roots with a fork or spade, then applying manure as above and raking in level. Of course it is understood that the roots must not be mutilated, or disturbed but as little as possible.

ASPARACUS—TRY FOR BETTER KINDS FROM SEED.

BY GEN. WM. H. NOBLE, BRIDGEPORT, CONN.

There is a future for asparagus as sure of reward to our effort as by its food supply. That lies in the search for better kinds. The Conover's is the first well defined heralded advance from the old sorts. To be sure the nurserymen always advertised giant asparagus. But this did not tell of a new kind; it only meant possible stature and stoutness by right feeding. In fact till the Conover's, those who taught us, like the MONTHLY, the bottom creed in horticulture, often laid it down that there was but one kind, that the giant came by high culture; they were pretty near the truth, but not quite. I have been for years, before the Conover, sure that there were two kinds, of quite unlike traits and looks. The old blue nose, blue top and stalk, and another variety with pea green heads and stems. This latter I always thought more thrifty, more succulent and tender and of higher flavor.

I had the kind seeding itself at random for years before the Conover gained its place and name. I think the Conover an offspring of that variety. But why stop at Conover? Why not follow up the well proved laws of development in search for still better kinds, kinds more thrifty, higher flavored and tenderer? The way thereto is through seeding and choice and trial. If Conover's one lucky chance plant put its boasted lift so high above the old sorts, we have a right to look for higher promise and fulfilment through many generations of its seed. No matter how rounded in all its points of excellence a growing thing may be, its goodness is no warrant for its saying "after me the deluge." Careful trial may yet reach a race of colossals, who in the ascent from like to likeliest will swell the asparagus to equal the bigness and stature of a banana. Why not if we accept the creed of evolution? What thoughtful and patient trial has done for fruits and vegetables it may perhaps do for the asparagus. We all remember how year by year the old love apple tomato, about as bereft of meat and flesh and pulpy tenderness as a pepper, has grown through its generations into the smooth, tender, full, solid-fleshed, high-flavored fruit that to-day delights us. There is like hope and high promise for all that grows in the garden from like effort. Then, too, if not millions, there is money in it to all whose thoughtful trial brings a fine fruit to the

orchard or a fine vegetable to our garden. But of late a pest has attacked the asparagus hereabouts. It is a small greenish worm that changes into a fly or beetle of the same tint. This comes on about the season of its latter growth and holds along well toward midsummer, ruining the plant. I think too in some way it attacks and eats out the pith and substance of the root. What is the remedy?

JAPAN PERSIMMON.

BY H. F. H., LEXINGTON, KY.

I am glad of the information in the MONTHLY about Japan Persimmons. They are certainly a failure. Trees planted here last Fall are dead mostly, Winter-killed root and branch. The sooner the public are aware of the unhardy character of the tree the better. Agents will sell at least one thousand dollars worth of the stock in this country this season, from which unadvised purchasers are not likely ever to realize aught but disappointment.

INARCHING GRAPE VINES.

BY T. T. SOUTHWICK, ROCHESTER, N. Y.

A vagrant vine of Isabella that came straying over to a trellis by which I had recently planted some vines, entwined a vine of feeble habit, and thus suggested to my mind the idea of joining the robust and well established vine with the weak one. As soon as the vines were about ready to enter mid-summer rest, or were through active growth, I carried the idea out by cutting from each vine a thin slice of corresponding size and binding the cut surfaces together. The union was prompt and solid. I make this note not to announce anything new, but to suggest to those who have vines they do not desire to keep, and who want to start young and feeble vines into quick growth, that grafting grape vines is a very simple operation if done when the sap is thick or as growth has about ceased.

REMEDY FOR THE COLORADO BEETLE.

BY A. H., MEADVILLE, PA.

I do not know if among the many things you cultivate you include the growing of potatoes. But if you do I would like to suggest among the remedies for the Colorado beetle the use of kerosene. I do not think it could be used successfully by sprinkling diluted with water; but if some kerosene be carried in a small open vessel,

it can be applied by a very small sponge fastened to a stick, or by a drop of the oil from the stick itself; a touch of the oil is fatal to the bug. It is easier than hand picking, and safer than Paris green. In knocking bugs off many fall down and escape, but none escape if touched with the kerosene.

EDITORIAL NOTES.

BENONI APPLE.—Dr. Burnett regards this as fully equal in value to the Early Joe, in Canada. Benoni originated in Ontario Co., New York; and Early Joe in Massachusetts.

THE REBECCA GRAPE.—This old variety, one of the first of the good white grapes, continues popular in Canada.

CHERRY BIGARREAU DE LYON.—A basket of jolly-looking black cherries of great size and beauty, stands for a few moments on our table, from a tree thirty years old, growing on the orchard of Godfrey Zimmerman of Buffalo. It is a kind deserving to be better known.

DISEASE IN RASPBERRIES.—In our travels recently we came on a gardener who believed he had discovered the cause of a common disease in raspberries. Half of a row was making no canes for next year, the leaves had a curled up look, and the whole bush miserable, though ripening fruit after a fashion. He dug some of the roots for us, and found them spotted in many places with decay. We had not the means of detecting then whether this decay was from insects or fungus, or other enemies; but the roots were in a bad condition, and no doubt had something to do with the sickly tops.

VAGARIES OF THE PAST WINTER.—Among the curiosities of the last Winter not revealed until recently, is its effect on large Black Walnut trees, at least about Philadelphia. In most cases, indeed in all that we have seen, all heads are killed down to the large main branches. In the early part of July the young growth was pushing profusely from these main branches; which with so many dead ones above them, gave the appearance of wholly dead trees covered with Virginia creepers or other vines.

THE HORNET RASPBERRY.—One of the most beautiful sights in the fruit line that we have seen for a long time, was a block of Hornet raspberries on the grounds of the venerable P. R.

Freas, the fifty-year editor of the *Germantown Telegraph*. The canes with their foliage were models of health and beauty, and were borne down or would have been had they not been tied, by their weight of fruit, and such fruit! Though Herstine, Philadelphia, and other well known kinds were there and as well cared for, none of them had such large berries or would fill the bowl as well as "the bill" as these. The berries were at least one-third larger than Herstine, and their pendulous cherry-like habit gives them an interest to the eye long before they reach the mouth. Of course it is not "hardy." Lazy people to whom any thing that will fill the stomach in the shortest and fullest manner is all that is worth living for will not touch it. But any one to whom it is a labor of love to spend an hour in October in bending down a hundred canes or so, and covering them with a few inches of earth, will have something worth loving all the Summer months following; for the Hornet is a long time running out. One can have Hornets on his table from his own bed for six weeks, and not object to their presence; even were they real "hornets" instead of *Hornays*, as the critical tell us we must call them.

HOTHOUSE GRAPES.—Mr. A. Sigler, of Adrian, Michigan, is very successful with his cold grapery. It is singular that more amateurs do not have these adjuncts to garden pleasures. No doubt people can bring Malagas and others, from Portugal or California at nearly the same figures as the cost of raising them; but the nice fresh cut from the vine, and of one's own growth, besides just as we are ready for them, is worth the five cents per pound difference in actual cost.

GRUB IN THE VEGETABLE GARDEN.—"Constant reader" says: "I have been considerably troubled in my garden with a grub, the name of which I cannot give. A full grown one being about two inches long, white with reddish head. Last year it cut off all the roots of my young strawberries, ate potato tubers, beets, etc.; and seems to be particularly fond of lettuce. Am also told it does sad havoc with grass. Every one I speak to about it seems to know it, but no one can give me any remedy to get rid of it. I would ask you to be kind enough to give me some instructions through the *GARDENER'S MONTHLY* that will enable me to get rid of the pest."

[This seems to be the grub of the May beetle, for which we know of no remedy but birds, all

kinds of which are fond of them. Nurserymen and florists are often troubled with them about their rose plants, carnations, etc.; and they generally employ boys to stir the earth carefully and pick them out.—ED. G. M.]

SEXES OF ASPARAGUS.—It is now many years ago since we made the readers of the *GARDENER'S MONTHLY* acquainted with the fact that the sexes of asparagus were on separate plants; that is to say that it was dioecious, and therefore it was impossible that any supposed variety could be reproduced from seed. The discovery has now been made in England, and the *Gardener's Magazine* has engravings of the separate male and female plants. The editor has an excellent article on varieties, deduced from this fact, and shows what we have often done, that all the money spent on "new" and "improved" varieties of asparagus is money wasted. Seeds from a well grown asparagus bed will probably give better plants than seed from mere wildings; and this is all the "improvement" we can get from asparagus, unless some one should start the plan of dividing the roots of some unusually good plant.

UTAH SEEDLING APPLES.—It shows that a country is getting settled when it is old enough to boast of seedling apples. Higgin's Red and Orton's White are favorably spoken of as Utah Winter apples.

FOX'S CALIFORNIA SEEDLING PEARS.—These pears, favorably noticed some years ago in our magazine, are stated by the *Pacific Rural Press* to have had nothing in their market last Winter to compare with the variety known as B. S. Fox in size, flavor or abundant juice.

PRESERVING GRAPES TILL APRIL.—The *Pacific Rural Press* says: Grapes in April were on exhibition at the store of Strong & Williamson, on Clay Street. The fruit has been preserved in the powdered bark of the sugar pine, and is, in taste and appearance, almost as fresh as the day it was taken from the vine. They were received from George Geissenderfer, of Placerville. The fact that grapes can be preserved in this way may be suggestive to some of our vinegrowers. Certainly there could be money made by supplying the trade with fresh grapes at this time of the year.

JUCUNDA STRAWBERRIES.—Very good fresh fruit of these were in the Cleveland market at retail at five cents per quart, and magnificent fellows in little quart baskets at twelve cents

that would have made the heart of the late J. Knox rejoice.

PEARS FOR THE ENGLISH MARKET.—England is famous for its hothouse fruit, but does little in the out-door article. The *Garden* says that a great proportion of the best dessert pears seen in the English markets are imported from France and the Channel Islands. Indeed, California and many parts of Eastern America are likely to play an important part as regards furnishing pears to the English markets; but the distance and length of time that elapses from the period when the fruit is packed, till it is unpacked in England sometimes tells badly in regard to pears, a circumstance favorable to English growers.

JAPAN PERSIMMON IN ENGLAND.—This has been fruited in England and found delicious; but it was grown in a house. It is thought perhaps they may succeed with it there out of doors trained to walls as apricots and peaches are.

NEW OR RARE FRUITS.

A NEW RASPBERRY.—J. C. C., Burlington, N. J., writes that he has a new raspberry, a seedling which he has tested four or five years, and which he is now satisfied is worthy of being better known.

THE GARDEN STRAWBERRY.—Specimens of this sent us by Mr. Foster prove it to be a very good berry and to have a good habit of growth. A great number have been sent out at high prices and high recommendations no better than this. In these fruits, however, it is hard to form a correct estimate of character, as this depends so much on contingencies.

BECKERT'S PROLIFIC STRAWBERRY.—J. B., Allegheny, Pa., writes: "We express you this morning a basket of our seedling strawberries, 'Beckert's Prolific,' a cross between Wilson's Albany and Jucunda. We claim for it size same as Jucunda, with a better color and half better bearer, also being about ten days later. The samples we sent were taken from a rather thickly planted patch, and are not as large as we have had them. Our principal claim for them, however, is their bearing quality, which is not exceeded by any variety we know of."

[These strawberries have very much the look of fine Jucundas, but with the color and tartness of Albany Seedling.—ED. G. M.]

FORESTRY.

COMMUNICATIONS.

FOREST CULTURE.

BY E. L. KOETHEN, PITTSBURG, PA.

The GARDENER'S MONTHLY for May contained a well written article entitled "Our Forests," to which I desire to make a short reply. In many respects I agree with the writer. All that he says about forest fires is only too true, but in speaking of the effect of forest clearing on the climate he goes too far in saying that it is of no importance. The effects which forests are supposed to have on the climate are a very essential consideration. I say supposed to have, because until now no reliable continued scientific observations have been made on the subject. But it is to be hoped that with the improved apparatus, and the knowledge which has been gained, the United States Signal Service may do much good to science in this direction. But whatever direct effect forests may have on climate, they certainly wield a great influence as mechanical agents. As such their influences are various. They protect the soil from a too rapid evaporation; the absorption of water by the soil in forests is greater than in open ground. They serve as a barrier to protect the surrounding country from violent winds, and prevent the drifting of snow, which is in itself a great protection to vegetation besides its influence as a fertilizer. They have a moderating effect on extreme changes of weather, both in Winter and Summer. They are a protection against malaria; and finally by their absorbing the water of melting snows and violent rains they protect the surface from the corrosion by swollen mountain torrents. All this is discovered by actual observation.

A leading author in speaking of the downfall of the Roman empire and the agricultural decline of the countries that were under its control, says: "Vast forests have disappeared from mountain spurs and ridges; the vegetable earth accumulated beneath the trees by the decay of leaves and fallen trunks, the soil of Alpine pas-

tures which skirted and indented the woods and the mould of the upland fields are washed away; meadows once fertilized by irrigation are waste and unproductive, because the cisterns are broken or the springs that fed them are dried up; rivers famous in history and song have shrunk to humble brooklets; the willows that ornamented and protected the banks of the lesser water courses are gone and the rivulets have ceased to exist as perennial currents, because the little water that finds its way into their old channels is evaporated by the droughts of Summer," etc.

It has been found by actual observation that peach and pear trees are less liable to disease if planted under the protection of a forest belt. When Napoleon I. caused the expulsion of English iron, the Italian forges and furnaces were stimulated to great activity; the ordinary production of charcoal not sufficing to supply the demand, the woods were felled, the copses were cut before their time and the whole economy of the forest was deranged. At Piazzatorre the effect of this was such that maize no longer ripened, and at the restoration of the forests it again grew and came to maturity. Many similar instances might be cited if space allowed.

When this country was first discovered and explored by the white man, almost all of the land lying east of the Mississippi, with the exception of a comparatively few open plains, was one vast forest well watered. But with the gradual advance of civilization one portion after another of this grand gift of nature was destroyed, as the land was needed for other purposes. Now as there was so much of this land the lumber had no value; in order to get it out of the way it was burned wholesale, and this continued until in such localities as were thickly settled it began to be in demand. But this wholesale destruction has not yet ceased, as in the far West in some of the thickly wooded territories, where transportation would be too expensive to make the shipping of lumber profitable, it is still the practice for the settlers to burn off their clearings.

There are thousands of acres of land in the United States to-day which are under cultivation but are practically unfit for the purpose, and hardly pay for working them, but that would make good timber land if properly managed, and could be made profitable in due time. Among such lands we might mention steep river banks, river hills and rocky ground, etc. That lumber is increasing in value is very evident from the following figures:

In the neighborhood of Pittsburgh, unsawed logs of various kinds sold at about four cents per cubic foot in 1845, which was before the war, and prices of saleable commodities were about the same as they were in 1878, when logs of the same kind sold at eight and nine cents per cubic foot, delivered at the wharf in that city. The average price of sawed lumber at Pittsburgh in 1845 was \$5.75 per thousand feet; in 1879 the average price was \$14.80. These figures show an average increase of over a hundred per cent., but do not take into account the important fact that the quality of the best lumber of to-day falls far short of that in common use before the war. Hemlock lumber is not included in the calculation, as it was scarcely used before the war, and yet it now commands about the same price that good material did in 1845.

Several experiments have been made within the last few years to grow timber for profit in different localities which have already proved remunerative. According to the census of 1869 in the three States of Michigan, Minnesota and Wisconsin 3,311,372,255 cubic feet of lumber were cut during that year, and in order to obtain this enormous quantity, 1,380 square miles of land were cleared. It has been computed that at this rate, twenty years would finish the lumber trade of those States. It is to be expected that the coming census will develop some equally startling statistics on this subject. Now it is an error to suppose that the acreage which has been entirely stripped, and is under cultivation, is diminutive. Such may be the case in some few localities, but we speak of the country at large, and when we consider the whole country we find that it is immense, and that the amount of such cleared land is daily increasing, while the demand for lumber is increasing in the same proportion. All this goes to prove that the consumption is far greater than the production, for very little has been done as yet to help the latter, and the proportion of land which has been allowed to take the natural course, and

to start on the production of a fresh crop of timber, is comparatively small; while the frequent forest fires which are so destructive to the young growth are continually retarding the production. We do not now greatly feel the want of timber, but the time is coming when, unless something is done to protect forest lands, lumber will be obtained with great difficulty. It is to be hoped that the people of North America will make the growing of timber an industry, which will undoubtedly prove profitable, and that the government will also take measures in that direction, and take the same interest in them that the European governments have for years. The assessment of taxes should be so regulated that the proportion of the assessment on wooded lands should be smaller than on cultivated ground. In conclusion it must be remembered that it takes time to produce a forest fit for cutting, and consequently we must prepare now for the future, and not wait until we really feel the want of such wood.

[We make room with pleasure for this interesting paper; though it follows in the popular wake of treating the question somewhat from patriotism, it also deals with facts and figures, which is what we all like. The comparative value of lumber in the Pittsburgh market as the years roll along is worth studying, and similar comparisons from other points would be acceptable. It would also be valuable to have further particulars about the plantations which have already proved remunerative and profitable.]

The great trouble from forest fires seems insurmountable. People hesitate to plant largely when the hopes of years may be destroyed in a few hours. Possibly something may be done to check this evil, but in the meantime cannot some scheme of forest insurance be devised as well as insurance for any other property?

For our part, amidst the immense amount of trash that comes before the public about forest destruction and forest culture, we may discern advancing rapidly towards us an era of forestry culture; a branch of business which, when managed as any good business should be, will be one of the most profitable departments of soil culture that can perhaps be pursued.—ED. G. M.]

EDITORIAL NOTES

ANNUAL RATE OF GROWTH IN TREES.—At a recent meeting of the Torrey Botanical

Club in New York, Mr. N. S. Britton, of Staten Island, gave the following table, from observations made at New Dorp:

TREES.	Average age.	Average increase in diameter.	Average increase in ring thickness.	Average increase in height.	Number of trees on which average was taken.
Abies excelsa.....	32-6	0-61"	0-30"	1-73'	3
" balsamea.....	30	0-38"	0-19"	1-56'	3
Pinus strobus.....	27	0-51"	0-25"	1-52'	1
" rigida.....	32-6	0-31"	0-15"	1-17'	5
" mitis.....	35	0-45"	0-23"	1-18'	2
Thuja occidentalis.....	28	0-32"	0-16"	1-15'	3
Juniperus Virginiana.....	59-7	0-21"	0-10"	0-58'	12
Salix alba.....	32	1-06"	0-53"	1-62'	3
Liriodendron.....	38	0-45"	0-22"	1-57'	1
Juglans nigra.....	26	0-41"	0-20"	1-55'	2
Quercus alba.....	47-3	0-35"	0-18"	0-88'	6
Acer rubrum.....	28-4	0-45"	0-22"	1-51'	5
Carya tomentosa.....	70-4	0-20"	0-10"	0-95'	5
Betula alba.....	34	0-18"	0-09"	1-32'	3
Fagus ferruginea.....	44-8	0-36"	0-18"	0-78'	5
Ulmus Americana.....	38	0-52"	0-26"	1-31'	2
Castanea vesca.....	52-3	0-51"	0-25"	0-96'	7
Sassafras.....	27-1	0-23"	0-12"	0-96'	8
Catalpa.....	32	0-55"	0-28"	1-39'	5
Ailanthus.....	31	0-59"	0-29"	1-46'	11
Apple.....	23	0-65"	0-32"	1-23'	6
Cherry.....	29	0-54"	0-27"	1-40'	7

It would be interesting to know how these figures would compare with others. Certainly we should not expect anywhere else to find the Balsam Fir beating White and Pitch Pine in average annual growth. Such figures as these are very much needed in American forestry.

WHITE CEDAR.—Caught by a sudden shower

in New Jersey, the writer took refuge in a shingle mill, where the Cupressus thuyoides, the White Cedar of that section, was being worked up into roofing shingles. Examining some logs it was found that they rated from thirty-five to sixty years old, and that they averaged about eight inches in diameter; one thirteen inches thick numbered sixty-five annual rings. The trunks run about forty feet high before they branch much, that is the lower branches get killed by the closeness with which the trees grow together. The price paid for this wood by the shingle mill ranges from \$7 to \$10 per cord. Pieces cut into four feet lengths and arranged four feet high and in a block eight feet long make a cord. As the trees of White Cedar grow so thickly together that in a twenty-year old forest one could not see a bear twenty feet away for the tree trunks, one can form an idea of what a cedar plantation would be worth, and whether a "life insurance policy" so invested would be worth as much or more than the paper ones so popular. A "White Cedar policy" would probably be payable in fifteen or twenty years.

WHITE PINE LEAVES.—The leaves of the White Pines were severely injured by the cold frosty winds of March; half of the length, the upper half being destroyed. It is not usual for this tree to suffer in this way.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

OBJECTS OF SEX IN FLOWERS.

BY THOMAS MEEHAN,
PROFESSOR OF BOTANY TO THE PENNSYLVANIA
STATE BOARD OF AGRICULTURE.

The reports of this verbal address before the Board at its Spring meeting, as given in some of the Philadelphia city papers were so absurd, that we have much pleasure in giving our readers a very good abstract as made by a "country" paper—the *Bucks Co. Intelligencer*.

"Mr. Thomas Meehan, of Germantown, on Thursday afternoon delivered an instructive and most excellent lecture on the sexes of plants. He commenced by quoting from the works of

Mr. Darwin and others, showing that their views necessarily implied that the chief end of sex in animals and sex in plants was alike; but said he there is really little similarity in the relations of the sexes of plants as compared with the sexes of animals. Animal life is dependent for perpetuation upon the existence of the sexes; but this is not true of plants. The Red Dutch Currant for instance has been propagated by cuttings for many hundreds of years, as have Bananas, and many other kinds of which he instanced a large number; and numbers which produced seed in nature, rarely profit by the fact, for they keep on for successive generations by underground suckers, tubers or offsets. It was a mistake to regard a plant or a tree as we would regard an individual animal. A plant or a tree is in reality

not an individual, but a republic—a collection of individuals in which the different sexes and the different relations of society might be fairly paralleled. The evils resulting from the improper views of sex in plants were shown, not only by the speculations on cross-fertilization prevalent, but by the theories of Knight and others on the wearing out of varieties, which could have no substance when the true idea of sex in plants was perceived.

"The subject of odor in flowers was specially dwelt on to show that it had no very near relation to sex, and consequently could have no bearing on questions of fertilization either by insect or any other agency. In Indian Corn and other diœcious or monœcious plants, odor abounded in the male flowers, but was wholly wanting in the female flowers, and there was as much or more odor in leaves and stems than in flowers.

"In animals, sex had evidently an essential bearing on the continuance of the race; besides this an evident object was to give variety. Could animals divide and reproduce as plants could, identity would be difficult. Nature therefore has variation as a leading object of sex. It is necessary even to the dull intellect of an insect, that there should be variety in plants, to enable it to choose its food. Only thus far did any great analogy between sex in plants and animals begin. It promoted variation and individualization, and then there were wholly different objects in sex in plants not aimed at by animal sex. A morning glory or a balsam would die by the first white frost; but the seed would endure a temperature far below zero, and in this way distribution and preservation were ministered to in a manner wholly unknown as the result of sex in the animal world.

"The relations of nutrition to sex were then touched on. He showed that sex itself was a mere attribute of nutrition to begin with, illustrating this position especially by the flowers of Pine trees which bore female flowers on the branches most favorably situated as regards nutrition, the same branches producing male flowers only when by any circumstance they became weakened; as for instance by the over shadowing of the larger ones. He applied this principle to the production of clover seeds, orchard fruits, and so forth; showing that questions of nutrition underlied all questions of cross-fertilization or of any fertilization by means of pollen. This he illustrated by numerous cases familiar to the farmer

and gardener, and concluded by observing that as the object of sex in plants and animals were different, speculations drawn from a supposed analogy were dangerous even in theory; and that they were unsound in practice the instances cited would prove."

ARE PLANTS FED THROUGH THEIR LEAVES?

BY PETER HENDERSON, JERSEY CITY HEIGHTS,
NEW JERSEY.

In the July number, Mr. Milton seems to think he has settled this question when he tells us his Bilbergias have made a growth without roots, and that when we sprinkle a lot of unrooted wilted cuttings, we know that in a short time they will regain their plumpness in leaf and stem. That this statement is correct there is no doubt, and it does seem on first view to annihilate my doubts.

On the 2d of July, the day I received the MONTHLY, I cut off fifty strong growing soft shoots of Geraniums, Petunias, Verbenas and Heliotropes, threw them down in the hot sun until they were thoroughly wilted. One half of them I immersed in soup plates filled with water; the cut ends of the other half I covered with soft putty and oiled paper, so as to prevent absorption through the cut stem even from the air. I then immersed all of these in the water except the sealed ends. I placed them in a greenhouse over night, and in the morning found that those that had been completely immersed were as fresh as when cut from the living plants, while those that were immersed with the sealed up stem out of the water were limp and wilted, seemingly as much so as when immersed. Now if I am correct in this experiment, and it is easily tried, it is fair to infer that the sprinkled cuttings, resuming their plumpness as referred to by Mr. Milton, absorbed through the cut stem rather than the leaves. For if absorption had taken place through the leaves, the sealed up lot would have been as fresh as the others, for only the part sealed up was left out of the water.

But the question may be asked why does Mr. Milton's Bilbergia increase in growth and weight while suspended without roots if my Cactuses did not? I can only answer this by supposing that the vessels of the cut stem of the Bilbergia are better fitted for absorption than those of the Cactus; or it may be that some species of plants do absorb to a limited extent through the leaves. My opinions to that extent of the subject are by

no means fixed, but that they do so to an extent whereby they can be fertilized or invigorated so as to give any practical assistance in their culture by being stimulated with ammonia or nitrogen applied to the leaves only, I yet very much doubt.

Mr. Milton says that the reason that vegetation in the immediate vicinity of bone factories, etc., is not improved by the exhalations therefrom is because it is not in condition to be absorbed. Why not? If the open air is charged with ammonia in a rainy or moist day, in what way does it differ from Mr. Foust's greenhouse wherein he lets loose the ammonia from his heated shovel? If the one case fails to fertilize vegetation certainly the other must, for we know from the unpleasant odors wafted for miles that in the immediate vicinity of such factories the air must be pregnant with the gases that go to feed plants, and that when carried down by the rains to the leaves, and no beneficial result follows,—and it certainly never does—this evidence goes far to deny the generally received opinion that plants can be fed through their leaves.

Mr. Foust's prescription would have inspired more confidence if he could have stated that the "improvement" he claims was shown from a comparative test. I have no doubt the plants and flowers in his careful hands showed well even after such an application, but is he sure without comparison that this was the result of the air being charged with ammonia? It is not an unusual practice for doctors to prescribe bread pills to their patients; may be it would be better if nothing else were ever prescribed. The patients improve and of course the pills are given the credit. Mr. Foust's ammonia, as he says, certainly does no harm; neither do the bread pills; but do either do any good? They may, but I won't believe it until Mr. Foust can show that under exactly similar conditions of the same kinds of plants, grown in the same soil, temperature and moisture, that one greenhouse treated to the ammonia shows better results than another alongside without it. Any such trial as he describes, made without comparison, is never satisfactory and is always open to question.

PLANT LEAVES AND THEIR FUNCTIONS, RESPIRATION AND EXHALATION.

BY J. GRIEVES, PATERSON, N. J.

In Mr. Peter Henderson's article in the June number of the GARDENERS' MONTHLY he says: "My practice, which has extended through a pe-

riod of over thirty-five years, and which I believe has been as varied and extensive as that of most men in that time, has never yet shown me a single instance wherein I was certain that plants either absorbed liquid manure, or even fertilizing gases by their leaves." My experience in plants has not been as long and varied as it might have been; but in chemistry I have dabbled more, and would modestly suggest to him or others interested, a very simple and effective test in regard to the absorption of fertilizing gases by the leaves of plants, which I believe will prove the fact to a certainty. Take a bell glass and fill it with water, to which a considerable proportion of carbonic acid gas has previously been added, and place in it a branch or an entire plant covered with leaves, and expose the whole to the rays of the sun for some hours. The air if now analyzed will be found to contain scarcely any carbonic acid gas, but it will contain a larger proportion of oxygen than before the experiment. Now if we take a branch of a plant with the roots fixed and growing in the soil,—consequently in its normal state of vegetation,—and place it in a glass vessel, and by means of an air pump a given quantity of air is caused to circulate round it, this air which before the experiment contained from four to five ten-thousandth parts of carbonic acid gas, after the apparatus has been exposed to the sun's rays for a certain time, will not be found to contain more than from one to two. If on the contrary the experiment is made during the night it will be found that the quantity of carbonic acid gas would be increased, and at the expiration of a certain time would have risen to eight ten-thousandth parts. If we now reverse our first experiment and put a plant or leafy branch in a jar or balloon with gas which cannot be renewed and leave the whole in darkness for some ten to fifteen hours, we may assure ourselves at the end of this time that the atmospheric air contained in our vessel is no longer of the same composition as before the experiment. Carbonic acid will now be there in greater abundance and the quantity of oxygen will be less. But if in place of leaving the plant in darkness we expose the apparatus to the sun's rays, the balloon or jar will have lost a noticeable quantity of its carbonic acid gas and will be enriched in its oxygen.

These experiments, in which there is an interchange of gas between the plant and the atmosphere, exhibit the double phenomena of absorp-

tion and exhalation, forming a true respiration. Differing from animals in not being continuous by night and day without cessation, but having two modes, one diurnal, in which the leaves absorb the carbonic acid of the air, decompose this gas and extract and give forth the oxygen whilst the carbon remains in their tissues; the other nocturnal and the reverse, in which the plant absorbs the oxygen and extracts the carbonic acid—that is to say they breathe as animals do. The carbon which plants use during the day is indispensable to the perfect development of their organs and the consolidation of their tissues.

If further proof were needed we have only to take a given weight of pure sand and wash it clean and boil it to dissolve all soluble matter out of it, and when so prepared put a healthy strong cutting of a plant into it and grow it into a plant which will soon double, treble and quadruple its weight, even if watered with pure distilled water, in which no gases or salts remain. If at the end of a time we now weigh our sand again we find the same weight without any appreciable diminution; while our plant has gained fourfold by absorption of carbon, nitrogen, ammonia, etc., contained in the atmosphere, and that, principally through its leaves; as we had no roots to start with, they only contributing to sustain the equilibrium when formed later on. So that it may be fairly claimed that by respiration, i. e., absorption and exhalation, plants live, feed and grow, and while doing so purify the air injured by combustion and the respiration of men and animals by pouring into it large quantities of oxygen gas, as can readily be demonstrated as above.

Plants subjected to perpetual nocturnal respiration by long continued darkness undergo certain modifications in their exterior aspect, by losing a great part of their carbon, which passes into the state of carbonic acid, and they exhale large quantities of water, producing a decided elongation of the plant, a greater softness in its tissues, and the absence of green coloring. The juices are considerably modified and changed, a fact the market gardener turns largely to his profit, rendering his lettuce, sea kale, etc., succulent, sweet and delicate by carefully applying this principle of blanching.

I have only treated of carbonic acid, which supplies all plants with the carbon of their tissues, whether through the soil by the roots, or through the air by the leaves, as being the most easily demonstrated on account of the

latter being the medium through which the great bulk of this food is absorbed. The three foods all plants require are first, water; second, carbonic acid; third, ammonia. According to Schleiden the greater part of water is supplied to plants in the form of vapor, the other portion in rain. The sources of ammonia are nearly the same as carbonic acid and the decomposition of nitrogenous matter.

In closing I will only add that the sap of special plants contains the metallic oxides as potassium, sodium, calcium and magnesium. How these various substances permeate through the tissues of plants is much more of a mystery than the absorption of water and carbonic acid gas is by the leaves. At all events they are not so easily demonstrated, although simple facts on which all botanists are agreed. I would have liked to touch on this as well as root action, electrolyses and the effect of heat and light on plants also, but this note is too long already, and I will leave these to abler hands.

THE FLORA OF THE STATE OF TEXAS.

TRANSLATED FOR THE GARDENER'S MONTHLY FROM THE "ANZEIGER DES WESTENS."

As the State of Texas is divided from north to south into three well defined zones—prairie, hill and mountains—so she is divided from east to west into three distinctly defined zones of vegetation. The east is as much unlike the west as you may say Maine is to South Carolina, and no wonder, since there is a distance of about 800 miles from the eastern to the western line of the State.

Texas may be said to consist, first of the region of evergreen trees, stretching from the Red and the Sabine rivers to the Trinity and beyond, west of the region of oak and mesquite trees from the Trinity to the Medina, and lastly of the region of chaparrals from the Medina to the Rio Grande.

The most part of eastern Texas is covered with evergreen trees. The woods are so immense that you may travel in them for hundreds of miles and not find an open space. The more southerly you go the denser are the woods, and the more do they trend in a westerly direction. A narrow tongue of them goes even down as far as thirty miles below Austin, on the Colorado, and beyond that river. Here the town of Bastrop was founded, and for a while that little place supplied all the timber for the west of it until the woods gave out. In the north, the pine woods terminate

already when they reach the Trinity river, and once across its wooded valley and before you is the open prairie, rolling in every direction for miles and miles, alternating with deciduous woods.

The pine, covering nearly the whole of the eastern section of the State, is *Pinus tæda*, and another kind, the name of which I do not know though it grows south-east between the Neches and the Sabine. The same pine is found in Louisiana between Niblett's Bluff on the Sabine, and St. Charles Lake on the Calcasien, forming splendid woods, trees often two hundred feet high. This pine is peculiar, growing straight up without a branch for say fifty feet, then sending in every direction strong but naked branches, which again send forth side shoots, and it is from the tip ends of these only that the heavy bundles of needles hang down perpendicularly. These needles are soft and pliant, and at least a foot and a half long. A young pine of this kind will shoot up eight to ten feet before branching. Throwing from its top a big bundle of needles all round it looks exactly like a young palm from a distance. The timber of these two pines is cut on innumerable sawmills. Some railroads have been built solely to carry the lumber to market. Nor will it be so very long before the woods will be exhausted.

Whilst in the south-east of the State the pines are seldom interrupted by other woods, you meet in the north-east all at once with fine woods of oak and elm, mixed with other kinds such as ash, gum, etc.

Before proceeding, I would here point out a mistake very often met with, particularly in Europe, and spread over in text books, viz.: the assertion that the Texas flora consists partly of Mexican and partly of North American plants. Now whilst individuals of either are found largely in Texas, it still is a fact that the greater number of Texas plants are peculiar to that State, forming a group whose members are not found elsewhere in the world. The striking character of the Texas flora is variety of kinds, multiplicity and beauty of form and exuberance of growth. Texas has enriched already with many plants our civilized countries, for instance with *Phlox Drummondii*, which just now covers hill and prairie with blood-red, pink and white flowers; with *Cercis reniformis*, *Ungnadia heterophylla*, the red and yellow *Oenotheras*, *Abutilon*, *Asclepias*, *Verbenas*, *Eupatorium*, *Gaillardia*, *Euphorbia bicolor*, *Ixia cælestina*, the Yucca Palm and an infinite number of Cacti and *Opuntias*.

Again there are found in Texas, plants which are also found in Mexico, in the United States, in Europe, and even in Africa, and these plants were found before any people settled there. Of such are the Mexican *Troximon*, of Cape plants the *Sisyrinchium Bermudianum*, and *Amaranthus græcizans*; of European ones *Oxalis corniculata*, *Chenopodium hybridum* and *album*.

As Mexico has been called the land of Cacti, Brazil that of *Melastomaceæ*, the United States of *Quercus* and *Caryas*, so Texas may be called the land of *Onagraceæ*, as relatively speaking their representation is the strongest here. As native plants of Texas, amongst others may be named *Hypericineæ*, *Vaccinæ*, *Lentibulariæ*, *Primulaceæ*, *Plantagineæ*, *Orchidaceæ*, *Opuntia*, *Mammillariæ*, *Echinocacti*, *Cerei*, *Echinocysti*, *Sophoræ*, *Solani*, *Convolvulaceæ*, *Phlox*, *Oenotheræ*, *Salviæ*, *Verbenæ*, *Euphorbia Helianthia*, *Mimosæ*, etc. These plants are scattered over the whole State, some all over, east and west, on mountain and on prairie, others are restricted to particular sections. Of the latter are notably the trees, which give their character to the landscape.

Wherever deciduous woods appear amongst the pine rigicns of the east, there they are generally of but one kind of tree. But in the wooded valleys the greatest variety prevails. There strikes us first the splendid *Magnolia* with its snow white flowers, as large as a plate, and its rich dark-green leaves. This *Magnolia* generally grows in clumps, intermingled with pines, in damp places, often forming woods by itself, and is found all over between the Neches and Buffalo Bayou, but only in the south-east section of the State. It disappears completely about a hundred miles from the coast. Another *Magnolia*, large smooth leaves and smaller pinkish flowers, grows in the valleys of the extreme east. There we also find the *Catalpa* and a tall dark *Juniper*.

Other trees of these valleys are *Elms*, *Ulmus Americana* and *fulva*, *Platanus occidentalis*, *Quercus cinerea* and *alba*, Black Walnut, a Poplar, *Populus angulata*, and what the natives call "gumtree." Innumerable creepers and climbers, some with stems as thick as an arm, are to be mentioned, such as *Clematis*, *Rhus toxicodendron*, *Cucusta systyla*, which cover whole clumps of trees. Of grapes we see *Vitis cordifolia*, and also the blue Passion flower, *Passiflora texensis*.

EDITORIAL NOTES.

THE SLEEPY PLANT.—That remarkable plant, of which we suggested last month Rip Van Winkle probably ate, and of which our smart daily editors made so much—it was to "add untold wealth, to the coffers of happy humanity—turns out as any one of good judgment should have suspected, to have been a sort of April-fool story nicely put together by an Australian newspaper employé. His Chief now threatens to discharge the "lying scamp" if he can discover which one it was. We hope he will not be found out, but will try his genius again. There is good fun in "gull-fishing."

THE SEASON IN NEW YORK.—S. F. T., Saratoga Springs, N. Y., writes: "Average temperature for May 67°, with three frosts at the end."

MEN WITH TAILS.—It is now discovered beyond a shadow of doubt that there is a race of men in Australia with tails. Mr. B. S. Williams' plant collector came on them. The tails extend about half way down their legs. The natives were peaceable, and as they were wholly naked, Mr. Goldie and his party had a good opportunity of seeing and examining them. But the tail, though calculated to mislead a frightened observer, was found by these botanists to be made of a peculiar grass, and securely fastened by a very strong but fine thread about their loins.

PRANKS IN A PEAR.—We noted recently the case of a pear from Rochester, which did not push out its petals—that is to say flower—till long after its ovarium, the future pear, had grown, and several weeks after its proper season. Before that paragraph appeared in print our correspondent, the Rev. E. P. Powell, wrote as follows, under date of June 17th. "I have a Rosteizer Pear tree that has every pear in blossom; full perfect blossoms. The pears are as large as the end of your finger. It is a curious sight. Tree twenty feet high."

BEAUTIFUL BOTANICAL GARDENS.—It is a pleasure to note that Prof. E. W. Hilgard in the California *Horticulturist* takes ground against the miserable weedy concerns once known as "Botanic Gardens," and makes a convincing plea for the combination of beauty with science in these establishments.

A POISONOUS PLANT.—A Grundy Co., Tennessee correspondent writes: "Many cattle poisoned by seed of a pear-shaped fruit, upon a

plant about two feet high. The first effect of the poison is excessive thirst, causing the animal to drink large quantities of water. It then puffs up, grows weak, lies down, and never rises again. It refuses fodder, and ceases to ruminate, dying in from one to four days. Stomach and entrails visibly 'blighted.' But it is a pity that "science" is at such a discount, or some botanist could be found to let us know more about "a pear shaped fruit upon a two feet plant."

AGRICULTURE IN PRINT.—The way in which sparks of wisdom fly from the columns of some shining lights in the agricultural press is almost blinding. One gravely tells us that the "period at which clover is cut for hay materially influences its quality; thus, according to Wolff, the amount of nutritive substances in red clover at beginning of flower is 11.26 per cent.; red clover in full flower, 13.04 per cent. Red clover hay, cut at beginning of flower, contained 55.43 per cent. of nutritive matter, while the same cut in full flower contained 46.07 per cent."

It may perhaps be a great consideration with the poor farmer whether in a hundred parts he will get twelve and a quarter, or thirteen parts of "nutritive substances;" but the condition of the weather, the drive of his work, or the weight per acre of the produce will be more likely to decide "the period at which clover should be cut" than the gain of three-quarters of one per cent. in the "nutritious substance" of the hay. There is no harm in knowing the fact that there is a difference in quality, but we fear it will have little influence in deciding the "period."

THE MOST NORTHERN PLANT.—Among the plants collected by Dr. Bessels on his Polar voyage we noted as among the most northern of the plants he collected a small dwarf Poppy, *Papaver nudicaule* and a miniature Dandelion. The Poppy has been found beyond the eighty-third parallel of latitude, and is believed to be the most northern species hitherto found. It has yellow flowers, and is quite large and showy for so small a plant.

BOTANICAL STUDIES.—Prof. Meehan, in the *Independent*, remarks that there are few scientific fields that afford more scope for original and interesting observation than the botanical. There is hardly a day but some student strikes on a novel feature, and it will be many years yet before we shall have discovered in it all that is to be known. In an English paper recently we have an interesting account of the

productiveness of bulbs. Some yield an immense number of offsets, while others reproduce very slowly. In the case of one variety of tulip, called the "Goldham's Mary," only one new bulb is made every year. Many varieties of tulip "think nothing" of yielding a dozen or more. Among the Gladiolus of our gardens the same was found to exist. From one variety,

called "Brenchliensis," the observer could get a thousand young bulbs in a half-dozen years, while many will not give half a dozen new bulbs a year. There is, of course, a reason—some law governing this productiveness, and which when discovered, will throw light on many other problems; but the reason has not been made clear yet.—*Pacific Rural Press*.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—NO. 3.

BY JACQUES.

It is a pleasing task to transfer to Notes and Queries the following well expressed thoughts from a late *Saturday Review*:

The Love of Flowers.—Miss Malin and her coadjutors deserve well of humanity for what they have done to diffuse among us an inclination for one of the most wholesome as well as fascinating pursuits. Nobody who has not tried it, can imagine what is the continued stimulus of plant rearing as a pursuit for leisure hours, when once a sufficient progress has been made to insure a fair proportion of successes. The most rudimentary love of flowers, if genuine, and a couple of hyacinths or pots of musk, are enough to begin with. As we watch the plants and feed them and wait upon them, a strange sort of sympathy with them grows up within us. Their innocent green natures become a part of our own, and we acquire something of their willing gladness and patient tenacity. The way in which they respond to every gleam of sunshine and adapt themselves to all sorts of accidents is a constant source of pleasant surprise; it seems such a miracle when they unfold before our eyes, such a joyful encouragement when they prosper, and even when they die the pang is so free from bitterness, that it soon becomes impossible to live without them. The work of tending them is one of the few almost unalloyed pleasures we can give ourselves.

Great praise is given this year to the strawberry "Monarch of the West," and deservedly.

A newspaper observing rows of young men at church doors, calls them "dandy lines."

Cowley's translation from Claudian, which a correspondent wishes to recall, is this:

"A neighboring wood born with himself, he sees,
And loves his old contemporary trees."

Susanna. Don't be troubled at the ignorance of foreigners regarding American geography, or American botany and trees. What do most of us know of South America? You remind us of an anecdote. Two young Englishmen, or Irish were they? when just out of college, got the awful habit of imbibing too much liquor, and were sent in a sailing vessel to be cured by the climate of the United States, their pockets well lined with gold. The captain of the ship soon saw their ignorance of the land they were bound for, and played upon their credulity. When opposite Nantucket island, he told them the natives were Cannibals and came aboard ships for a favorite meal, and they had better lock themselves in their staterooms! This they did for a whole day. No cures being effected these travellers were ordered home. The last that was seen of them, they were rolling down Broadway with a demijohn of whiskey in the front. They got aboard the home vessel and were last heard from as having emigrated to Australia. Don't be too anxious for the good opinions of Europe; that is all settled.

Why are the best things of all kinds the scarcest—men and women, fruits, etc.—is a ques-

tion to puzzle philosophers. Who can answer? Is it that we are made to acquire our good qualities and good things by hard work, or could an inventor of great power improve upon the old and the present order of things?

At a fancy ball lately, somewhere in Europe, a lady went in the character of a mushroom. Her dress ornamented with little growths of the same. This reminds one of the reply to the question, "In what character shall I go to the ball?" The reply was startling: "Go as a gentleman by way of variety."

Rats.—A Brazilian newspaper has some curious information about the plague of rats, which may well reconcile us to our smaller annoyances from these prolific vermin. They have destroyed almost the whole products of agriculture the past year. The bamboo everywhere abounds in the Brazilian forests. The popular explanation is that every cane of bamboo, sprouts with a grub, and that when the bamboo ripens and dies, the germ becomes a fully developed rat. But the curious and rational explanation is that the bamboo arrives at maturity, flowers and seeds at intervals of several years, varying with different species. Each cane bears about a peck of edible seeds, resembling rice, very fat and nourishing, and the quantity is enormous. The process of decay is hastened by the borings of the larva, and they, thinks the Brazilian, give rise to the grub developing into a rat; the increase in the rodents is very great. The crop over, the rats begin to emigrate for want of food, invading the plantations and houses, and consuming everything edible. If this happens at the time of corn planting, the seed is consumed as fast as it can be put into the ground, often six times. The mandioca and rice is all stolen, as is everything in the houses in the way of provisions and leather, if not carefully guarded in tin trunks. We suffer badly enough and often ask why care is not more frequently taken to exterminate the pests. It is said to be easily done, if you know how.

The Cochineal Insect affords large profits to the Mexicans, etc. Who knows but that the cost of covered glass houses would not be paid by our adaptive citizens? But we can command a surer industry in silk culture; the teaching done at our Permanent Exhibition we expect, will be followed up, till very many of our boys and girls find pleasing and profitable employment.

Let every gardener, and indeed everybody, in-

scribe somewhere on his premises where it can be daily perused, the words of the immortal Gibbon, in the 12th volume of his History of Rome; "In the productions of the mind, as in those of the soil, the gifts of nature are excelled by industry and skill. * * A single manuscript imported from Greece, is revived in ten thousand copies, and each copy is fairer than the original."

The literature of gardening, strictly so-called, is more extensive, pleasing, and informing than is generally supposed. First among American books should be placed Darlington's Life of Bartram, which has fascinations for the lover of nature, and of honest, natural men not at all inferior, though in a different way, to Boswell's Johnson. There is a vein of beautiful simplicity, with sometimes a touch of humor in the correspondence with his European friends. The finding of a new plant, or new turtle, is related with great accuracy and beauty, and Bartram's pursuits are extended beyond his gardening occupations. "Come over," he says to his neighbor Wilson, the ornithologist, "I have caught Napoleon," meaning a great eagle. Lord Petre, and his pear tree is a delightful episode. Dillenius and Collinson, with others of eminence, admired our American, and never tired of his letters and his seeds. Every lover of nature should read this work. Then, Loudon's many volumes are treatises of information and pleasant reading. So industrious was he, (his wife tells the story), that having lost the use of his right arm by a quack shampooer, it was decided to cut it off. The surgeons found him engaged on his great Encyclopædia of Plants. Moving without agitation to the operating chair, he submitted without a cry, and when released tried to be allowed at once to return to his work. These notes will still further call attention to the best literature of gardening, forestry, and botany. The world owes much to Loudon and Bartram.

Mr. Henderson writes justly enough from his point of view; but let some one ask him from whence, if not from the air, do plants elaborate their special and wonderfully different characteristics, such as the various spices. Plant onion and hyacinth bulbs in contact and they will come true from the same soil. Again, botanists tell us that sap and leaves contain minute particles of iron, whence do they obtain this mineral?

RESPONSES.

BY C. E. P., QUEENS, L. I., N. Y.

In the June number of the MONTHLY, Jacques asks, "why not have a department for Notes and Queries." The plan he adopts is a most excellent one, and I hope to see such a department continued in the MONTHLY hereafter.

I do not think much of *Abies Menziesii*, it forms a very ragged and shabby looking tree. I have one specimen about thirty feet high, with a stem three and a-half feet in circumference, and it is very shabby looking; in fact it is anything but satisfactory.

Have you or any of your readers had any experience with the double *Cinerarias*? Do they ever come true from seed? I have tried to raise them from seed several times, but have not been successful in raising even a good single flower from the so-called double seed.

Have any of the readers of the MONTHLY been successful in raising *Todea superba* from seed? I have one plant and I wish to propagate it; how can I do so? A few hints on its culture would be very acceptable.

Is there a good double fringed *Petunia* in cultivation, and if so what is its name?

The *Jucunda* and President Wilder Strawberries are worthless here. I find none to equal Seth Boyden and Charles Downing; for general cultivation.

And I wish to say in addition to Mr. Hick's notes on the trees of Long Island, that the foreign varieties of trees grow equally as well on Long Island as their native brethren. At Oatlands, Queens, L. I., the residence of W. D. F. Manice, Esq., there is a Cedar of Lebanon, four and a-half feet in circumference and upward of thirty feet high. *Magnolia macrophylla*, three and a-half feet in circumference and about twenty-five feet high; *Salisburia adiantifolia*, over thirty feet high; and a Spanish Chestnut eleven and one quarter feet in circumference, and about forty feet high; an English chestnut, upwards of forty feet high with a trunk of thirteen feet in circumference; besides other rare trees of equal size and beauty. If you or any of your readers wish a list or any information concerning them, I will give them full particulars through the MONTHLY or otherwise. I would like to have shown you a fine specimen of *Cladastis tinctoria* or *Virgilia lutea*, upwards of fifty feet high, the branches bending to

the ground with the weight of the long racemes of white sweet-scented flowers with which the tree was laden. It is one of the finest trees in cultivation, and I wish you would call the attention of all the lovers of fine trees to this variety; it should be found in every collection however small, being of quick growth and perfectly free from insects.

I noticed in the May number, page 132, an article recommending the *Ligustrum Japonicum*. Does Mr. Beecher mean to say that it will stand without protection. Here we cannot give it protection enough. Even when well protected it comes out in the spring about half dead, and looking as if it had come through a fire. *Nierembergia rivularis* is not hardy. I left out about a dozen plants the past winter, (1878-9), and this spring I found them all dead, and they were protected by evergreen branches.

Please give me the names of some of the most distinct varieties of the *Selaginellas*?

NOTES OF A SOUTHERN CEMETERY.

BY M. DIGRAM.

The horse rail road at Augusta, Ga., has a fitting termination at the cemetery of the town. Getting out of the car here and looking toward the enclosure before me, I queried of the white driver whether all religious denominations buried together, within the same fence? He said, "all but the colored, who occupy an adjoining square beyond the next street." After passing through a section of the cemetery of the pale faces, I crossed the street to that in which the colored people bury; the existence of which probably dates back to the days of slavery. This ground was even greener than the first, with *Euonymus*, the perennial-leaved mock orange, *Prunus Carolinianus*, and the live oak, *Quercus virens*.

Many of the graves here were covered with bits of fine pottery, broken vases and shells, broken plaster ceiling ornaments, broken water pitchers, broken oil lamps and lamp chimneys, and in one instance a fractured molasses pitcher. This last might have been intended to sweeten the way of some poor soul heavenward, and probably something of that kind in this especial instance may have been needed.

As emblems, these fragments of damaged china ware, etc., were certainly very appropriate, though I fancy no emblematic meaning was attached to them; they covered the raised

mound simply to distinguish it more clearly from the unhallowed earth around it.

On returning toward the gate, and when near the lodge of the keeper of the yard, who bears the name of Ebenezer Copper, I noticed what appeared to be a mammoth vegetable of a yellow gray color, the length of which was probably eighteen inches and the breadth and thickness twelve inches. It might have been an immense ruta-baga or sweet potato, but it was neither, though it had existed like them until discovered beneath the ground. The keeper told me that he had found it just under the surface when removing the earth for a new grave. The root to which it was attached was two or three inches thick, the excrescence being below, and just above the point of junction of the two, strong saplings or suckers had grown and had reached considerable size.

The real owner of the root and its strange attachment was a large sized paper mulberry, which grew at least a hundred feet distant from it. The trunk of a paper mulberry without wart-like protuberances is an uncommon sight, though the fact that the root also produced such was to me quite a revelation.

Mr. Copper, the keeper of the graveyard, also informed me that over the river on the rich bottomlands of the Savannah, *Broussonetia papyrifera* may be found in a wild state; its method of increase being as stated above by greatly elongated roots and shoots therefrom. I did not test this statement, though from the manner in which it was made I judge it to be perfectly correct.

A LEGAL QUERY.

BY TENNESSEE.

One of the misfortunes of this age is, an editor is expected to know everything. But be that so or not, I will ask you, also for the benefit of many nurserymen, especially in the rural district. Suppose a nurseryman is sued, and on his land is a fine growing stock; also his glass structures, his sash, his framing, pits and sash, his plants in pots, his empty pots, and his tools; can a constable seize on them as personal property?

Again, suppose a nurseryman is sued and levy is made on his real estate, and in time sold; can the purchaser, in the two years you have to redeem it in, take possession, displace the owner or prevent him from digging and selling any or all of his stock, or from selling his sash, green-

houses, pits, pot plants, pots and tools? You will say consult your lawyer. But lawyers, judges and courts, say they don't know the rule in such cases, and are as likely to decide the wrong way as the right; if there is not, there ought to be some basis as a guide, and I and many others look to you as a leader.

[So far as we know the exact status of nursery products has never been definitely fixed by any high tribunal, and in the absence of any high judicial decision the lower courts decide as seemeth best unto them; and hence the most contrary verdicts come from the same courts. In one of the Philadelphia courts during the war when the "profits of business" were taxed, a large Philadelphia nursery was compelled to pay as "profits" on the increased value of growing trees. For instance, if a tree a foot high was worth in the market five cents, and the next year had doubled its growth and be worth ten cents, this extra five cents after expenses of culture and interest on investment were deducted, would be considered "profit," and was taxed accordingly, the nursery paying somewhere about \$500 a year on this basis only, although the trees might subsequently be all dug up and burned. By this decision they were of course personal property. But when one of these same trees which had already been dug up, and was temporarily heeled in, was stolen, Judge Thayer of the same city, discharged the thief on the ground that nursery trees, as well as any other trees, were not personal property, and so could not be stolen. Nor could we ever decide whether it would be best for the nurseryman to have his products classed as personal property or as real estate. There are advantages and disadvantages, the one seeming to balance the other. At any rate, as there has been no definite testing of the matter, there is no way to do but to abide by local decisions, however contradictory they may be, unless one is disposed to spend time and money in getting a final decision; and even then as we have already said there may be as many disadvantages as advantages follow in special cases.—ED. G. M.]

EDITORIAL NOTES.

EDITORIAL TRAVELING NOTES.—Every now and then we read of the wonderful beauty of the English railroad stations, and contiguous grounds, and unfavorable comments made on

the condition of our own. But the traveler over the Pennsylvania Railroad to New York, will find that however true this reproach may have been in the past it is now in a fair way to be removed. In many places the banks have been newly sodded, and are kept mown, and at some of the stations, notably Princeton Junction, which is the branching place for Long Branch, the flower gardening, the walks, and the general finish, are all creditable to correct gardening taste. Further improvements may yet be made by the introduction of Virginia creepers, Trumpet vines, and Honeysuckles over the stations and bridges, as well as the grateful shade of deciduous trees on hot Summer places. This famous company already deserve well of the traveling public by the expense they have been under in stone ballasting their roads, thus removing the terrible annoyance of dust that renders so many roads a punishment instead of a pleasure to the traveler; and when to this the eye is to be delighted with beautiful scenes in living characters, as well as beautiful architecture in station-houses, railroad traveling will become as great a recreation as a "ride in the park." A ride to New York is however prolific in natural floral beauty; for we have to go a part of the way through New Jersey which may be regarded emphatically nature's flower garden. On this occasion the Blue Flag and the Sweet Water Lily made sheets of pretty color, and the Cynthia Virginica, a peculiar orange tinted composite gave an unique appearance to the meadow scenery. The Sisyrinchium, or "Blue-eye" grass, made the fields as blue as the sky, but those who would enjoy this pretty sight must travel before noon, for soon after that the flowers close for the day.

The towns and cities along the line grow; but not particularly fast. Trenton with its potteries, having recently added to this peculiar industry the art of burning pictures in fine porcelain, is evidently prospering. New Brunswick, Rahway, Elizabeth, and other cities with their wealth of frame buildings also grow slowly, but chiefly apparently by their contiguity to their larger sisters, Philadelphia and New York. Numerous handsome frame dwellings have been built of late years, evidently by some who do business elsewhere; and this class of houses will no doubt become more numerous, as the railroads make traveling rapid, cheap, continuous and comfortable. The gardening connected with these houses—and it is with this chiefly that our

readers are concerned—did not strike me as having progressed much of late years. Trees, plants and flowers wholly unsuited to the wants or characters of the surroundings abounded, and I could not but be impressed with the fact that the tree peddler had been there. Right near the windows in the glare of the full sun, where some pretty and fast growing tree might delight by the fragrance and beauty of its flowers, or afford a luxury by its grateful shade, a little Kilmarnock Willow or a Weeping Mountain Ash, would be stuck in; or if in some cases a tree had been thought of, it would be perhaps a switch about as thick as ones thumb, and six or seven feet high, and we may be tolerably sure of reading the inscription "In the sacred memory" on the owner's tombstone, long before there is the possibility of his fondling his children or lolling in his easy chair under its umbrageous branches. For the tree peddler is always an enthusiast on small trees. "They grow best you know." In some cases, especially where new streets are laid out, larger trees are employed, but these are generally of the refuse stock of nurseries in which they had evidently been standing for years thickly together without removal since they were first set out, have to have their heads cut off by the planter who has "guaranteed them to grow," and so has had to cut them down to bean poles in order to save their lives. The gardening is on a par with the planting. The trees being planted without reason, the walks and roads correspond. Why they are led here or there no one could tell. The chief fashion seems to be to have an immense circle between the front door and public road, around which you wind 150 feet perhaps in the full sun, when a straight walk of one hundred feet would have done just as well. Wondering and musing on all these things I found myself at last on board of a beautiful river boat, bound for Providence; a sort of floating palace in which tasteful art had been given free scope, and furnished so much to admire, and little for fault finding, that I wondered still more that men and women who evidently could enjoy good taste and culture, should be satisfied with garden horrors. So we sailed along Brooklyn and the Long Island shore for miles; the houses more pretentious, but still generally tasteful and beautiful; the gardens larger, but still execrable. It is no wonder that Americans seem to take no "stock" in gardening. They are rarely enjoyable. Why it is that that which above

all things might be made so full of pleasure at so small a cost, is the most expensive of wasteful expenditures, cannot be discussed in a letter and here. I am only recording the experience of a rapid ride. I breakfast in Boston before the sun has fairly risen, and it is not long before I see that though we laugh at Boston pride, and Boston ways, there is much of which she may well be proud. Instead of going through miles of sun-broiled streets, one cannot go far without coming under the branches of a shade tree; and the suburbs, which in this city seem never but a mile or two away, have all the streets beautifully protected by shade trees, some of the trees being of great age. And in their old trees Bostonians take great delight. Here and there we come on their remains, preserved by an iron fence perchance, and telling us that under it General Washington took command of the American army, or in some other way letting us know that the tree is associated with the history of the place. I was at a loss to know how Boston comes by its financial power. Only think of a banking capital of about \$27 per head for each one of its inhabitants, for the city does not seem very large. From some of its little hills you can see all over it, and, as I have said, you can get to its beautiful shaded suburbs anywhere on short notice. But the secret is soon found if you go to the depots in the early morning. Horse cars and steam cars go everywhere into the country, and the people live there. Though this city can only boast of being the third city in the Union in population, taking it on the "where do you sleep?" principle, a credible authority assured me that not less than 500,000 persons had members of their families employed in the city, adding to its wealth, if not to its census. The absence of any remarkable public gardens surprised me, until I found myself in these suburbs. There are squares, commons, and gardening art around water reservoirs and public buildings, but not what we would expect from the gardening fame of Boston; but I now saw that the suburbs themselves form one vast garden, and little more is required. It is a stony country, and Massachusetts is famous for its stones. But they come useful for fences along the roadside. Along the sides and out of the crevices of these old stone fences grow berberies and roses, and numerous other bushes, making the most inveterate Englishman never once sigh for his famous Eglantines or Hawthorne hedges. In-

deed when he rides over the smooth flinty roads, and looks over head at the English Elms, English Ashes, English Horse Chestnuts, English Maples, and at the broad drives over-arched with trees often a hundred years old, as they lead to famous old mansions grey with age, and lovingly embowered with vines and foliage, in the midst of broad and well-kept lawns, he may well believe he is in Old England still. The gardens are in striking contrast with the average of modern ones, as already referred to. In no place in the United States, have I seen so much good taste displayed. It is evident that good landscape gardeners as well as good architects have had employment here, and that mere weed-pullers and tree-peddlers are at a discount so far as "laying out and planting grounds" are concerned.

It is remarkable that with such an evident taste for good gardening and tree planting about this city both in the present and the past, there should be so few extensive nursery collections in the vicinity. The character of the trees planted show that a large number of them come direct from English nurseries, and therefore it is mostly European trees that abound. If Mr. Hovey had said in the English gardening papers, that American trees were not popular with Boston planters he would have been in the main correct. His mistake was in considering Boston synonymous with the United States. I have more yet to say of Boston gardening, but the pressure on the MONTHLY's space this month compels me to stop now.

POST OFFICE LAWS.—These have been again tinkered. We have been trying to find out in what way this affects Horticulturists, but cannot succeed, for the Postmaster General has not been able to fully advise as to how the law is to work. There was some endeavor to allow names and descriptions of plants, seeds and similar matter to go with the objects, but it was worded that "written communications not of a personal character, might go with third-class matter at third-class rates." The Postmaster General, up to latest advices had come to the conclusion that each local Postmaster must decide for himself what is, or is not a "personal communication."

A GRAND OLD HORTICULTURIST.—We have before us a letter from the Reverend Canon Beadle, a well known English Horticulturist, as well as an esteemed Clergyman of the English

Church. The letter was written in his 102d year, and is extremely interesting for the warm spirit of love for horticultural pursuits, as well as for its being a letter from such a famous old man. The writer has, however, ended his days in peace, since the letter was written. We are indebted to Mr. J. Frazer, of Rochester, N. Y., for a perusal of this interesting letter.

HON. CHAS. A. DANA.—This gentleman whose horticultural taste is not far behind his literary reputation, and whose beautiful grounds at Glen-cove, afford a fine specimen of good gardening, has gone for a brief period of rest and recreation on a visit to Europe. Our readers have had the benefit of occasional notes from his experience, and may hope for further favors on his return.

THE POVERTY OF PROF. LOUIS AGASSIZ.—A great deal has recently been made of a saying attributed to Prof. Agassiz, and recently quoted by Vice-President Steele, in an address before the Montgomery County (Ohio), Horticultural Society. "If Agassiz," says Mr. Steele, "was right when he said he couldn't afford to turn aside from his scientific investigations to make money, his life was in the truest and noblest sense successful." If Professor Agassiz ever said this, it must have been as an answer intended for an immediate purpose. It is too much the fashion to take these hasty sayings of great men, and which were perhaps quite proper for the special occasion on which they were used, as drops of wisdom applicable to their whole lives, and as something to be envied by all the world besides. It will be well to remember that Agassiz' love of science did not make him poor or keep him poor. He left quite a large estate, and his son is probably among the wealthiest of Boston. It is doing an injury to science to create the impression that its students must necessarily be poor, and the poorer they are the more they are to be envied. It is time this stuff had an end to it.

BARON FERDINAND VON MUELLER.—This distinguished Botanist, whose work in Australia is so well known and appreciated in the United States is the subject of an admirable likeness in the *L'Horticulteur Belgique*, for June. From the notice, we learn that the Baron was born at Rostock, in Germany, on the 30th of June, 1825. In 1839 he entered on a course of studies as a physician, but early showed a disposition for sci-

ence—especially for Botany and Chemistry. Still he pursued his medical studies, and in 1846, and 1847, found him in the University of Kiel. But his health suffering in the cool German climate, he determined to settle in Australia. His passion for botany increased as he surveyed the unknown forests of this wonderful land, and between 1848 and 1852, he made numerous voyages of discovery. His remarkable successes, requiring as they did so much courage and perseverance, commended him to the colonial government, and in 1852 he was chosen government Botanist, to the Colony of Victoria. He took an active part in the Gregory expedition for the relief of the unfortunate Louis Leichardt and his companions. On the failure of this, Mueller himself organized a new one, which though failing in its immediate objects, produced invaluable scientific results. In 1856 he became Director of the Melbourne Botanic Gardens. He has produced no less than 175 volumes on various subjects connected with Australian advancement. He will be best known to Americans by his profound researches among the numerous species of Blue Gum or Eucalyptus. His labors have been acknowledged all over the world, and he has received honors from the governments of England, Portugal, Spain, Denmark, Austria, France and Germany, have sent him honors seldom accorded to the mere scientific man; and the Queen of England has quite recently added to what that country has already done, by making him a Knight Commander of one of the honorable Orders of that Kingdom.

PROFESSOR ASA GRAY.—This distinguished botanist had a narrow escape from a serious accident on his recent botanical trip South. He was on the train which broke through the bridge near Wytheville, Virginia, and in which accident some of the Company's employés were killed. The locomotive, tender and baggage-car went through, and left the car in which was Professor Gray, and friends, just on the edge of the yawning gulf. When, as in the case of the Ashtabula bridge accident, useful men and women lose their lives, there is no end of examinations as to why a rotten bridge is allowed to stand; but when only a few feet stands between a similar national calamity, nothing is heard about it, and other bridges go on rotting away until some more precious lives are sacrificed. In these days of scientific advancement, there can be no possible excuse for a rotten bridge, and in all cases where accidents result from such care-

lessness, the State should not wait for prosecutions for damages by injured individuals, but heavily fine all companies on whose roads such accidents occur.

ROTTEN FRUIT.—As the season has arrived for submitting fruit to the editor for names and opinions, we would suggest the propriety of always paying the express charges, and marking on the box "paid in full," or "paid through." Fifty or seventy-five cents for express charges is not much to each sender, but it is a good deal for the editor when they come in a dozen or two at a time. Generally all unpaid parcels are absolutely refused, but once in a while in the Editor's absence, a box creeps in. We write feelingly just now, as thirty cents have just gone out of the door, and six rotten peaches out of the window.

REPORT OF THE U. S. GEOGRAPHICAL SURVEYS.—In charge of Lieut. Geo. M. Wheeler, Vol. VI., Botany, by Dr. J. T. Rothrock, Washington, 1878. The work and the publications of our Government surveys are acknowledged in Europe to be far superior to anything undertaken by foreign governments, and are such as to make every American feel proud of his country. Of this particular volume we can say that it is especially one that will sustain this eminent reputation. The plants collected by Dr. Rothrock, who was surgeon and botanist to the expedition, give us a good idea of the flora of Nevada, Utah, Colorado, New Mexico and Arizona. Many of the plants found are entirely new, and in this respect the expedition was unusually fortunate. The volume is a good companion to Watson's Botany of the King Expedition, by Sereno Watson, which hitherto has been regarded as one of the best works of the class ever issued in the United States.

REPORT OF CONNECTICUT STATE BOARD OF AGRICULTURE FOR 1878.—From T. S. Gold, Secretary. This volume is full of interesting matter. Professor Brewer discusses "the varieties of cultivated plants." He shows the differences between varieties and species, and how the former may be produced to the improvement of our fruits and vegetables. Prof. D. C. Eaton has a similar paper on "hybrids and hybridism." The distinguished botanist speaks as if it has been actually proved that the cucumber and melon hybridize when growing near each other, and the whole discussion in which numerous speakers evidently well informed, engaged,

was conspicuous for assumptions without anyone evidently having experimented on these simple things. They expressed unbounded faith in wonderful results, with but the slightest possible modicum of works to prove them. Fortunately the very practical address of Mr. J. J. H. Gregory in "vegetable" seed raising comes to our relief, and he tells from his own experience that the crossing of the Cucurbitaceæ is not after this wild fashion; not only will cucumbers not mix easily with melons, but even closely allied varieties do not trouble themselves much with the affairs of their neighbors. Mr. G., says that "crooked-necked squashes, Yoko-homa excepted, will not cross with any other variety, and water melons will not cross with musk melons." Mr. Gregory showed that while some closely related varieties as corn and so forth, mix easily when side by side, this was not true of distinct species. Professor Brewer also gave an able address on "the causes which affect the vitality of seeds." He shows that very few seeds will retain vitality over fifty years, and the stories of wonderful vitality he concludes, as the readers of the GARDENERS' MONTHLY have already been told, are fabulous. The main point he brought out is that though some seeds may keep many years, in all cases there is a deterioration of the vital principle according to age. Besides these addresses of horticultural interest, there is much valuable agricultural information.

NOEL HUMPHREYS.—Death has been particularly busy among European botanists and horticulturists lately. Among the recently deceased is Noel Humphreys, well known as a horticultural artist. Many of the illustrations in the works of the Loudons were from his pencil. He was seventy-two at the time of his death.

DR. DAVID MOORE.—This distinguished gardener died on the 9th of June, full of years and of honors. He served his horticultural apprenticeship in the gardens of the Earl of Camperdown at Dundee in Scotland, and had for many years past been Director of the Glasnevin Botanical Garden near Dublin. Besides his skill in gardening he was noted for his many contributions to those sciences which may be said to be born of or grown out of gardening. From a study of the genus *Nepenthes* alone he evolved the law that it required a greater effort of vital power to produce the female than the male sex in flowers; precisely the same conclusions as the

editor of this magazine arrived at after a study of coniferous plants. Dr. Moore's deductions though not published till after the American paper was read at Salem, Mass., being worked out on totally different grounds and wholly independent, will entitle him to a full share in any credit which may be awarded to the discovery. Intelligent gardeners will always be proud of David Moore.

SILAS MOORE.—By a brief newspaper paragraph we learn of the death of this excellent man. His nursery at Providence was well known. He took an active part in the American Pomological Society, and contributed many useful articles to the earlier numbers of our magazine.

DR. KARL KOCH,—Professor of Botany at the University of Berlin, and who took great interest in the application of botany to horticulture, died on the 22d of May, in his seventieth year.

AQUARIUMS.—It is interesting to note how business becomes divided. Here before us is the catalogue of Hugo Mulertt of Cincinnati, who makes a specialty of keeping aquarium supplies. Water plants, fishes, carnivorous plants, snails, are all catalogued here in a very intelligent way. It is a nice little pamphlet to read and study.

ORANGE JUDD COMPANY CATALOGUE OF RURAL BOOKS,—An exclusively agricultural and rural publishing house, is of great importance to these specialties and deserves encouragement. This illustrated pamphlet gives a complete list of the publications of this firm.

ADAM SPADE, THE GARDENER,—By John Smith, ex-curator of Royal Gardens, Kew. Under the guise of a parody, Mr. Smith manages to employ an immense number of puns. These double meaning words are tabulated at the end of the work with full explanations, so that under the guise of a little fun a great amount of useful information is conveyed. The little tract is published for the author by Hardwicke & Co., Piccadilly, London.

QUINBY'S NEW BEE-KEEPING,—By L. C. Root, New York, Orange Judd Co. This, like all books of this firm, is beautifully printed, and will make a good addition to any bee-keeper's library. There are many works on bee-keeping now,—we suppose just this one more will be wanted or the publishers would not have risked money in it. It seems to us that in no similar work that we have seen before has so much useful information been given about plants adapted to bee-food.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

GEORGIA STATE HORTICULTURAL SOCIETY.—The fourth annual exhibition was to be held at Macon, on July 19th, and preparations were made to have it one of the best ever made. A very fine exhibit was expected. The notice was not received in time for mention in our last.

THE AMERICAN ASSOCIATION OF NURSERYMEN.—The fourth annual meeting at Cleveland last month, was very successful. A much larger representation of the best members of the trade

were present than ever before, and the subjects were of great practical utility. The members were hospitably received and entertained by the citizens, although two other large conventions being held in the city at the same time must have drawn heavily on their time and other resources. Great credit is due to the President of last year, Mr. Harrison, of Storrs & Harrison, for the success of this meeting. The next year's meeting will be held in Chicago. Mr. Hubbard of Fredonia, New York was elected president for the next session. If as wisely handled as it now promises to be, the association may have a great influence in shaping the best interests of the nursery trade.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

There are few flowers more gorgeous in Summer gardening than the Lily; but it is only occasionally that we see very good success with them. Most people fail through having the roots planted where the ground is hot or dry. The lily plant, that is the top, rather likes an open place to flower in, but the roots love a cool and shaded place. The Autumn is the time to plant them; indeed as soon as possible after the Summer leaves have faded away they should be reset. Almost all bulbs are best set out at this season. The many beautiful bulbs of California have not been found to do well in Eastern gardens, and probably from being set in too hot a piece of ground. The time will probably come when bulbs will be made a specialty by cultivators; then the earth will be especially prepared for them, and everything made just to their liking.

There is scarcely anything more beautiful in Spring than a bed of Hyacinths and Tulips well intermixed. The Hyacinths go out of flower just as the Tulips come in. In the Spring, Gladiolus and Tuberoses can be placed between these; or if desirable, some flowering bedding plants, and in this way the gaiety and interest can be preserved from Spring to Fall. Crown Imperials are capital things for the centre of small

beds, and the regular bedding plants can go around them. Narcissuses keep their foliage too long after flowering, as does the Snowdrop. These can hardly be made available where regular bedding is desirable for Summer. They are best in odd patches by themselves. Crocus does well anywhere. It may even be set in the grass about the lawn, as it is generally over before the first mowing takes place. But it would not be admitted into our best kept lawns. The vast tribe of lilies come in rather late for Spring gardening, but few will care to be without them. Besides these there are many little items which are noted in almost all bulb catalogues, from which many interesting Spring blooms can be had. No one will go amiss in looking well to this class of plants. The best time to plant is from now to frost. Mice and vermin are very liable to attack these roots. Poisoning is the best remedy.

Ornamental shrubs also can be made to enter largely into Spring gardening, and be made to help the bulb in its beautiful work. We need not give lists of these Spring flowers here, as all the leading nursery catalogues now give full accounts of them.

What shall be done with the "Fall Grass" in the lawn is a continual question. Probably there is nothing to do when it once becomes established but to bear with it; and indeed

if it were not so late, leaving the ground bare in early Summer would be not wholly unbearable. It is very likely to get control where the lawn is from seed. Perhaps the only way to be sure of excluding it is to sod with tough Blue Grass sod. The practice of watering lawns with the hose, now so common, favors "Fall Grass." It loves a rich and rather damp soil. It seldom gets ahead much in dry places.

While noting Spring gardening one need not overlook how beautifully Fall flowers may adorn. From the time the perennial Phlox opens, about first of August, there is a continual succession of flowers till the Golden Rods and Asters finish the list. We do not know of anything more interesting for a specialty than a collection of Fall blooming Aster-like plants.

Another pretty specialty might be a collection of climbing vines arranged as a regular vine garden. These can be arranged in the shape of bowers, arbors, festoons, wreaths, or in pyramids or poles. Some would be regarded for their beautiful flowers and others for their beautiful foliage, while their graceful habit, made perhaps still more pretty by the hand of art, could be made to add an attractiveness to grounds scarcely dreamed of now.

As the planting season arrives, it is as well to repeat what we have often remarked, that the relative advantages of Spring and Fall planting are about evenly balanced. Failures follow all seasons. How to plant is of far more importance than when to plant; and the selection of stock to plant of far more importance than the time when it is done. A tree that has been once or twice before transplanted, and again carefully and intelligently taken up, may be successfully removed at either planting season, with the odds of perhaps one hundred to five in its favor. But a tree never before transplanted—such, in fact, as a tree from the woods, or left standing in the nursery from the seed bed—is very risky at any time, and depends rather on the weather following transplanting for the first few weeks for any probability of success. In selecting trees for planting, then, be very particular to ascertain that they have an abundance of fibrous roots, and are carefully removed. In this region we would plant evergreens at once, after or in prospect of the first good rain. Deciduous trees we would plant just before the final fall of the leaf, shortening off the ends of those shoots that were not quite mature.

COMMUNICATIONS.

GARDENING IN THE SOUTH.

BY WILLIAM SAUNDERS, LONDON, ONTARIO.

Our correspondent, Mr. Saunders, has been traveling South, and contributes the following notes of his gardening impressions to the *Canadian Horticulturist*:

Atlanta, "the Chicago of the South," is well situated on a very elevated plateau, more than one thousand feet above the level of the sea, and is probably the healthiest city in the South, and enjoys a temperature comparatively cool in the hottest periods of the year. It is the centre of an extensive railway system, and has a busy aspect; its population is about forty thousand, one-third of which is black. Since the burning of the city after its capture by Sherman, towards the close of the war, it has been almost entirely rebuilt, many of the buildings being of a very substantial character, and some of the private residences quite elegant.

An early morning walk revealed some novelties. One of the first things which attracted my attention was a tree new and strange to me, one which is extensively used here as a shade tree. It was leafless at this season, but being decked with large clusters of milk-white berries, was very attractive. This proved to be the Pride of India or Chinaberry Tree, *Melia Azedarach*. The berries are said to contain saccharine matter, and were used to make a fermented alcoholic beverage during the time of the war. One who has only seen the beautiful glossy foliaged *Euonymus Japonicus* in greenhouses or as a small half-hardy shrub in the open border during Summer, can form no idea of the beauty of this bush here, where it is perfectly hardy and thrives most luxuriantly. It bears trimming into all sorts of shapes, and makes the prettiest hedges I have ever seen. In addition to the richness of its evergreen foliage, it is doubly attractive in Winter when adorned with its bright-red berries; the long luxuriant branches thus richly ornamented are much used for interior decorations, producing admirable effects. Shortly my attention was riveted by a lovely evergreen with an enchantingly soft foliage, about ten or twelve feet high and eight or nine in diameter. I had seen small specimens of it in the North, and recognized it as the beautiful Deodar Cedar. It was a lovely sight to watch the graceful waving of its branches in the morning breeze, and the effect of the sunlight on its silvery and hoary

green foliage. Subsequently I saw many others of the same species, some of them admirable specimens. The evergreen *Magnolias* also grow to a limited size here, alongside of most of our Northern shrubs and trees. Beautiful specimens of some of the dwarf forms of the *Arbor Vitæ* were met with, also examples of several of the interesting variegated forms of the Japanese *Euonymus*. A few of the residences of the wealthier inhabitants are surrounded by neatly kept lawns, with trees and shrubbery tastefully arranged; but when compared with what might be done in a climate so favorable, it must be admitted that there is plenty of room for improvement.

During my stay I called on Dr. Samuel Hape, who is one of the most enterprising nurserymen in this district, from whom I learned that fruit growing was on the increase in Georgia. In season peaches are abundant and cheap, and large quantities are raised for export. Plums also are somewhat grown, but are subject to be attacked by the curculio much as they are with ourselves, and the practice of jarring the trees and collecting the insects seems to be too troublesome an undertaking to find much favor here. The doctor esteems the wild goose as a valuable sort, as it is, he says, less liable to attack from the curculio than the more highly flavored varieties, and for the same reason he speaks well of the Newman's, Decaradeuc's, Harper's, Brill, and Hattie, all descended from the Chickasaw Plum.

Among the apples especially recommended for market orchards here are many unfamiliar sorts. For example, among the Winter varieties are the Hockett's Sweet, Mangum, Nickajack, Romanite, Shockley, Yates, Santa and Black Warrior. Pears suffer much from blight, and hence are not very extensively grown; but grapes and small fruits are generally cultivated and usually give good returns; figs also thrive well in the open air in this section. With the mild and genial climate which middle Georgia enjoys, fruit culture of every sort should succeed. The present condition of society, however, is not very favorable to the development of industrial interests of any sort. The dignity of labor is much undervalued. By many of the whites manual labor is looked upon as in some measure degrading; and the negroes as a class are so lazy that they do not care to exert themselves unless their necessities drive them to it, and then their wants are so few that an occasional trifling

effort will furnish them with such subsistence as will content them. These blacks are the most jovial people one can meet with, always light-hearted and merry, no matter how great their poverty; often without a cent in their pockets and hardly knowing where their next meal is to come from, nevertheless they are as frolicsome as young lambs, and very much prefer basking in the sunshine, standing around the railway stations or steamboat wharves to engaging in any active employment.

A morning ramble with a friend brought us to a part of the city where the "poor whites" rendezvous, who raise small quantities of produce in the mountainous parts of Georgia and the adjoining State of Tennessee, and bring their crops here to market. Finding one of these remarkably slow looking people, who had just arrived with a few bushels of apples in his wagon, we ventured to interview him. We found that he had left his home, some hundred miles distant, eight days previous, with thirty bushels of apples. Some he had sold on the way at one dollar per bushel, the others he expected to sell here at seventy-five to eighty cents. The varieties he had were the Limbertwig, Abram and Howard or Nickajack, all very good sorts, but they had been poorly kept, and were not very presentable. Having finished his marketing and purchased his supplies, he would trudge his weary way over bad roads for another eight days before he could reach his distant home. These poor creatures enjoy but few comforts, and many of them seem to be less intelligent than the negroes.

We met with many kind friends during our stay here; found the Southern people extremely hospitable, and we left Atlanta, taking with us very pleasant recollections of our visit.

An afternoon train brought us, about dusk, to another thriving city, Macon, where we took a sleeper on a night train for Brunswick, in the southern extremity of Georgia. Daylight disclosed great changes in the character of the vegetation, which now began to assume a tropical aspect as we approached the land of flowers.

DEFENSIVE HEDGES.

BY J. M., PHILADELPHIA.

The many ill-shaped Osage Orange hedges which a few years ago were so common hereabouts led many to believe the statement to be true that in this country we had nothing to make hedges with to be as perfect as the Hawthorn

ones of Europe. But thanks to the experience of some, and to the teachings of others, it has been shown that our Osage Orange with ordinary care can be relied on to make a good defensive hedge, and there are now to be seen many hedges which are as perfect as could be desired. Not only here is the Osage Orange proving its worth, but in neighboring States it is also highly valued. In the vicinity of Delaware City, Del., the writer lately saw miles of Osage hedging just as good as any ordinary hedge he had seen in Europe. It is the custom in that part of Delaware to trim the hedges three times annually, but it would be found that twice would answer to make a good hedge. These Delaware hedges were trimmed flat on the top, which, while detracting from their beauty, tends to form them with very broad bases, which in time will make them perfectly impenetrable.

Osage Orange plants can be had at low prices compared to those of a few years ago, and with such care to the young hedge as the MONTHLY has often recommended, there is no excuse for those wanting a good cheap hedge not having one.

EDITORIAL NOTES.

BEAUTIFUL HARDY FLOWERS.—Among the most beautiful of August flowers in the garden are the Kansas Gay-feather, *Liatris pycnostachya*; *Helianthus mollis*; and *Heliopsis lævis*, which, though coarse in some respects, makes a gay appearance when mixed with other things.

LIVE FENCE POSTS.—These are commended every once in a while. We have an idea that their advantages are purely hypothetical. Does any one know of a case where the owner has been satisfied with one for a continuous period of ten years? If so we should be glad of particulars.

PAULOWNIA IMPERIALIS.—This, which is called Blue Trumpet Flower in the West, is known as Vanilla Tree in Paris, because of the delicate scented flowers.

LANDSCAPE GARDENING.—M. Andre, who visited Philadelphia during the Centennial, and has studied gardening all over the world, has just issued in French an admirable work on landscape gardening. He makes a point which those who have observed must often have reflected on, that a beautiful plan on paper is often

ridiculous when carried out—from the different plane from which the lines are observed. We have seen some delightful grounds which would be thought horrid on a plan.

PUBLIC PARKS AND GARDENS.—It is said by the London gardening papers that among the signatures to the petitions to Parliament for the closing of public gardens, parks, museums, and libraries on Sundays, side by side with the names of reverend signers are the names of tavern keepers and liquor sellers, who seem to understand that there are no "back doors" to the public gardens as there are to the "gin palaces."

SCARCITY OF TREES AND SHRUBS IN ENGLAND.—The *Gardener's Chronicle* says that a good variety of trees and shrubs has been very much neglected in England in favor of even slight varieties of evergreens. This fact strikes most visitors to England after a visit to the leading American nurseries and private grounds. A collection of over a thousand marked varieties and species of trees and shrubs, such as may be found in some American nurseries, has probably never been known in England.

MIMULUS FOR FOUNTAIN DECORATIONS.—Under the spray of the Boulder Falls in the Rocky Mountains, where indeed so much spray falls that one almost needed an umbrella, the writer gathered a small *Mimulus* native to that region, that was much more luxuriant than the same species gathered under other circumstances. There seems no doubt that the various species of Monkey-flower would make admirable subjects for fountain decorations.

GROWING SPECIALTIES.—One of the arts of successful nursery or florist business is to find out something in demand, and which one can grow cheaper and better than anybody else. The English papers are noting the success of one florist who has given up everything else for Mignonette. No one can grow it as well and as cheap as he, and as there is a good demand for the London market, he sold last season twenty-four thousand pots of this sweet plant. We have in our country some who have acted on the same principle and grown wealthy. There is the Dingee Conard Company in the rose specialty as an illustration. They found their circumstances just suited to the cheapest possible production of the plant in first-rate quality. They have sold low accordingly, but still profitably, and have their reward.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

Those who have greenhouses, pits or frames, will now see to having any necessary repairs attended to. Whitewashing annually is serviceable, destroying innumerable eggs of insects, in the war against which the gardener should always take the initiative; sulphur mixed with the whitewash is also serviceable. Powerful syringing is a great help to keeping plants clean, and should be frequently resorted to. Those who continually use the syringe, and are watchful for the first appearances of insects, are seldom on the search for remedies. It is so with window as with greenhouse plants. The one who looks at each plant every day, turns up the leaves and examines them, and watches for the first abnormal appearances to trace out the matter, almost always has healthy plants. Often plants in these situations cannot well be syringed, but a sponge is a very good substitute.

This is the most active season for striking cuttings with the view to have plants for next Spring. It is not among the least signs of advancement that striking cuttings is now a very simple operation, when once it was one of the great mysteries in the art of gardening. We were told to be very careful about watering, but now we find that if the cutting is properly selected and the temperature just right, the more water the better. Indeed saucers without any holes, so that when watered the sand in them is like mud, are found to be among the best of all propagating pans, and the little patent devices, or curiously constructed pots for propagating, which in the past were among the most important outfits of a new beginner's attempts at gardening, are now found cracked or rusting in some old shed. But even with the simplification of this cutting business some art must be used. Indeed it requires experience to succeed well. The very soft wood will perhaps rot, and so will the very hard wood; and then the position may be too hot or too cool. Generally a half ripe cutting put into a pot or box of sand, put right in the full sun, and kept copiously and continuously wet, will rot in a few days. Those who try it for the first time may fail either wholly or in

part; but if they are observing they will soon trace the cause of failure, and have better luck next time.

It is a very good time to look around for soil for potting purposes. The surface soil of an old pasture forms the best basis, which can be afterwards lightened with sand, or manured with any special ingredients to suit special cases, as required. The turfy or peaty surfaces of old wood or bogs also come very "handy." A stock of moss should also be on hand for those who crock pots, in order to cover the potsherd; moss also comes in useful for many purposes connected with gardening, and should be always on hand.

People not in the secret are often puzzled over the terms used by gardeners in potting. Soil they regard as the earth—earth of any kind that is ready to receive the plant or seed. A heavy soil is that in which clay preponderates over sand. A sandy soil is that in which sand is abundant with the clay. Loam bothers some people—generally it is used as the equivalent of "soil," writers often using "sandy loam" when they might just as well say "sandy soil." But strictly it is the upper surface of clay land which has become black by contact with the air and culture. A loamy soil would be understood as a rather heavy earth lightened by culture.

Plants intended to be taken from the open ground and preserved through the Winter should be lifted early, that they may root a little in the pots. A moist day is of course best for the purpose, and a moist shady place the best to keep them in for a few days afterwards. Anything that is somewhat tender had better be housed before the cold nights come. Some things are checked without actual frost.

COMMUNICATIONS.

NOTES ON PALMS.

BY F. W. POPPEY.

Now that palms have been found not to require such a high skill to grow them, nor that all need be supplied with so much artificial heat, as some natives of the hottest parts of the

world, and that they enter so largely in the decoration of parlors, halls and conservatories, it may not be amiss to make their friends better acquainted with the important part they play in the economy of nature and of the relation they bear to the human race, apart from their imposing grandeur and sublime beauty. In those countries, where the permanent high temperature of both atmosphere and soil prevent man from becoming as industrious as is natural and necessary for him to be in the temperate zone, nature has produced plants which yield almost without labor all man needs to maintain a life of *dolce far niente*. Besides the banana, no plant occupies such an important position as the palm. Furnishing food, drink, clothing, building material, condiments and in short everything man needs where so little is required to satisfy his primary necessities.

Since the space allowed in this magazine is not sufficient to exhaust the subject, I will only mention some few of the most useful members of this aristocratic family, the princes of the vegetable kingdom, as Humbolt called them.

At the head of them all stands indisputably the Cocoa Palm, of which not less than twelve different species with numerous varieties are known. They are perhaps the most cosmopolitan, since they grow in Asia, America, Africa and Australia, but principally on the Indian Archipelago and the islands of the Pacific Ocean, thriving best near the coast, a few feet above high tide, but occur also in the interior of the continents, in the cultivated districts of the Magdalena River, near Patna, in Bengal, Merida, in Yucatan, and under the equator, even as high as 3000 to 4000 feet above the sea. In Asia they grow in the West of India as far north as 22° N.; on the coast of Bengal and China they extend their limits to 25° S., to which degree they also go in Australia. Thus they inhabit a zone of 50° on the west of America, whilst on the east of our continent and the west of Africa they become scarcer and their range is considerably reduced. They are of rapid growth, attaining a height of from sixty to one hundred feet, and acquire their greatest capacity of bearing at the age of from twenty to sixty years, after which period they lose their elastic appearance and upright position, becoming crooked and unsightly. Every part of them is useful. The leaves, fifteen to twenty feet long, are employed in the manufacture of baskets, mats, screens, parasols, hats

and roofing. Both in Europe and in this country the fibre of the nuts is extensively used in the manufacture of hats, mats and brushes. The young and tender leaves, when cooked, furnish a vegetable dish similar to our cabbage. The kernel of the nut gives the well-known cocoanut oil, and the curry or mullagatawny, is a dish indispensable for the table of a Cingalese. When the tree becomes too old to bear any more fruit it furnishes that valuable wood known as Palmyra-wood. The wine made from the juice of the flowering shaft called Toddy, when in full fermentation is much relished by the inhabitants of East India. The species called by botanists *Cocos nucifera* being the most useful of the tribe is cultivated on the Canary Islands. In Brazil we meet the *C. coronata*, *C. capitata*, *C. schizophylla* and *C. oleracea*. In New Grenada and Venezuela *C. butyracea*, which, when felled and a cavity cut into the trunk yields an average of eighteen bottles of wine, said to be equal to the best champagne. *C. guinensis* and *C. aculeata* furnish that valuable article of African commerce, the genuine palm oil.

Next to the Cocos we find the Areca palm, with twenty species, belonging exclusively to the Eastern Hemisphere. Of these the most important is the *A. Catechu*, a slender, most lovely and graceful tree about fifty feet high, furnishing the catechu or Japan earth, the extract of the fruit. It is an adjunct to every Indian and Cingalese village whenever it can be made to grow, but being naturally a lover of moisture it finds its most congenial home in the well watered valleys of Ceylon. The nut forms the principal part of the material for betel chewing, a luxury in which the Cingalese and Tamil people, old and young of both sexes freely indulge. With this we must mention the *A. oleracea* or Cabbage Palm. Then the Arenga with five species of which the most important is *A. saccharifera*, yielding palm wine from which the Batavian Arac (*Aarc de Soa*) is distilled. In Malacca it is cultivated for the purpose of making sugar, and from the marrow, sago. Next come the Borassus Palms, growing both in Asia and Africa, about seventy feet high. *B. Æthiopicum*, the Delep Palm of Nubia, valued for its fruit and the roots of the young plant which are eaten. This palm gives character to the whole country South of the Lake Tsad, and is to the inhabitants of middle Africa of the same importance as the Date

Palm is to the Arabs. *B. flabelliformis*, the Tala, Palmyra or Contar Palm forms extensive forests on both coasts of the Persian Bay, also along the coast of Malabar and on the banks of the Indus; on the coast of Coromandel as far as Madras; the North of Ceylon; the Sunda Islands; the Moluccas and so forth, thus occupying about a quarter of the circumference of the Earth between 10° S. and 30° N., and between 54° and 140° E.-L. On the peninsula of Jaffna, Ceylon, it is estimated that upon about thirty-three square miles upwards of six millions and a half of this Palm grow, furnishing the main sustenance to between six and seven millions of people. The adaptability of this precious tree to various purposes is almost unlimited. A poem in the Tamil language mentions 801 of them.

The Date Palm with about twelve species, growing in Asia and Africa, and of which the *Phoenix dactylifera* is the best known is cultivated since time immemorial. It is supposed to be derived from the East Indian species, the *Ph. sylvestris*. Though not cultivated in India, yet there are nowhere such vast forests of it found as on the Delta of the Euphrates, which probably is the home of this providential tree. The manifold uses of this palm are too well known to need repeated enumeration; suffice it to mention that the sap of *Ph. sylvestris* is so rich in sugar that one tree yields from seven to eight pounds of it annually and that the yearly production in Bengal alone amounts to about one hundred million of pounds.

To describe all the palms which so largely constitute the wealth of the tropics and supply so bountifully the means of life and commerce to the inhabitants of the warmer countries would require volumes, and this enumeration of a few of the most useful and interesting ones is expected to induce some of your readers to seek for more information elsewhere.

CULTIVATION OF CAPE HEATHS.

BY JOHN FYFE, MOUNT AUBURN, BOSTON, MASS.

The Cape Heath genus, *Erica*, is esteemed by all lovers of Flora as one of the finest of greenhouse plants, and should be found in every collection of any extent. I however, find it a prevailing idea in this country that the Heath cannot be cultivated owing to the nature of the climate. This I think is not the case, as by comparing this climate with that of the Cape, there

is not so great a variation. The atmosphere here is quite as pure as that of the Cape, and the Solar Heat does not differ so much as to materially effect that beautiful tribe of plants if they are tended with care and unremitting attention. I have been with the late Mr. MacNab, of the Royal Botanic Gardens, Edinburg, for a number of years. He was, I may say, the first and greatest of Heath growers, for I have never seen his fine specimens eclipsed either in Scotland or England. I have thought a few hints of his superior modes of treatment might be useful for your excellent magazine, and stimulate growers of plants in this country to patronize this unique and beautiful tribe of plants.

The first and most important part of growing the Cape Heath, is the nature of the soil; it must contain a considerable quantity of pure white sand, say one-fourth part of a whole mixture will not be too much. The soil itself must be of a friable nature, not that spongy bog peat, but that found on high lying ground, which in Scotland is generally to be found mixed with fine white sand; but where this important ingredient is wanting, it can be replaced by pounding good free stone, and mixing it with the soil to the extent recommended above. The plants are also greatly benefited by a quantity of free stone broken into small pieces and mixed in the soil, and also in the process of repotting pieces of the size of two or three inches of the same materials placed around the ball as the soil is filled into the pot. The value of these stones is very great in the process of growing the Cape Heaths, as in many instances they suffer from over moisture, when these stones help to absorb and again give out the moisture to the roots. If the cultivator resides in a very dry atmosphere, keeping the plant the whole year in a greenhouse is important. Shelves ought to consist either of stone or slate slabs, as wood is very injurious to the plants in absorbing the moisture from the roots of the hard wooded varieties,—in particular, such kinds as *Jasaminiflora*, etc. The drainage of the pots or tubs is also an essential part of the treatment of the Cape Heath. Whatever size of pot or tub is used for a plant, a fourth part of it should consist of clean drainage; that is either broken free stone or pots, and a nice layer of turfy peat on the top of them before placing the plant in position, which should be rather elevated then over deep. The treatment during the summer months must also differ from that of the general run of green-

house plants; they must be so placed that they can be sheltered from heavy rains and seorching suns. The best mode of treatment we could suggest during the tropical summers of this country, is to choose some northerly aspect; and having some nice large roomy frames with sashes in readiness to draw on in the event of heavy rains, plunge the plants up to the rims of the pot, using fine sand to plunge in, which keeps the roots nice and cool. Pots set out in the open air unprotected from the hot rays of the sun get so heated that they destroy all the fine fibrous roots of the Heath tribe. The treatment of the plants during the growing season, is also a most important part of their cultivation. If fine bushy specimens is the aim of the cultivator, he should give careful attention to supporting the stems with nice, green painted stakes—to such varieties as the Aristatias, Jasminiflora, etc., and all of that class; but the soft wooded varieties, such as Lenoides, Caffera, and all the Ventricosa section should have the young wood constantly topped as they grow to make fine bushy plants, and will do with few stakes, the fewer the better; for I think the remarks of the late Dr. Lindley were good, when he said "that a plant with a multitude of stakes was like a cripple who needed support." Indeed the fewer stakes that any of the varieties have, the better, and this important point in growing fine specimens may to a great extent be attained by regularly pinching the tops of the young shoots as they proceed in growth. During the growing season Heaths, of whatever variety, should never be cut back to the old wood, as in many varieties it will prove certain death, at least in all the hard wooded sections. Some of the soft wooded varieties, such as the Caffera, Ventricosa, etc., may do to be cut back to a certain extent, but a much better plan is to shorten in the young wood, which in all the different varieties of the Cape Heaths, is sure to produce the best results.

The treatment of the Cape Heath under glass during the winter, is a most important part of successful cultivation of this fine tribe of plants. They must not be crowded among other greenhouse plants, but stand clear by themselves, and the less the amount of artificial heat, the better, if the frost is barely kept out. Indeed, I have seen two or three degrees of frost in the Heath houses, of the Botanic Gardens, Edinburg, and air on them when the temperature out of doors was 36°. Mr. McNab had a very excellent plan of managing the heating apparatus in the Heath

houses, by keeping the hot water pipes covered with sand, and when very severe frosts set in, he removed a portion as circumstances required to allow a circulation of heated air.

Since writing the above, I have had a conversation with Mr. Dawson, the curator of the Bussey Institute, who informs me that Professor Sargent, the director of that Institute, as also of the Cambridge Botanic Gardens, contemplates the very judicious experiment of getting seeds of the various native species at the Cape, from their correspondent there, and raising seedling plants which would result in a brood of real acclimatized varieties which would have all the vigor possessed by healthy seedlings, and would cross with some of the fine European hybrids, like McNabiana, Aristata, etc. I hope that the Professor who possesses a fine taste for floral studies, may carry out this excellent resolution.

COLEUS PICTUS.

BY ALMON STONE, APPLETON, WIS.

It is claimed by most florists, that Coleus pictus and multicolor were introduced from different countries. I have a plant of Coleus pictus, with one branch of multicolor. The different parts of the same plant are just as distinct as a plant of the pictus, is from multicolor. Hence they must have had the same origin, and as I find several of the pictus plants sporting into multicolor, I should judge that multicolor is nothing but a sport from pictus. Will those who introduced them throw some light upon the subject?

HYBRID PERPETUAL ROSES.—TWELVE BEST FOR FORCING.

E. FRYER, DELAWARE, O.

In the MONTHLY, for April last, E. H., of New Bedford, Mass., asks for names of twelve best H. P. roses for forcing. I suggest the following list:

Mad. Chas. Wood,	La France,
Louis Canique,	Mad. Prosper Langier,
Mo. Laing,	Anna Alexieff,
Roi D'Espagne,	Geant des Battailles,
Coquette des Alps,	Pæonia,
Gen. Jaqueminot,	President Willermoz,

All of the above will be found perfectly reliable, if grown in pots at least one year previous to being forced. I have given this brief list as proved by experience of some years.

I would also suggest to E. H. that if, after a season's forcing of any variety of H. P. Roses,

he finds any that are in any way lacking in vigor of growth, to plant such out in the open ground in Spring, and they will gain in health and vigor better than in a pot, and be in condition to take up the following Autumn to pot for forcing. If Gen. Jaqueminot is grown into strong, well ripened wood, there will be no trouble about its blooming.

I would here call the attention of Rose growers and rose lovers (who does not love a rose?) to a rose in the above list which seems to be little noticed in many catalogues—Roi D'Espagne. This is certainly the richest colored rose in existence. Its most permanent shade being a dark, rich crimson, some flowers so shaded with dark maroon that if they were not on the same plant they would be taken for different varieties. The flower is very full to the centre, and nearly five inches in diameter under good culture in open ground. It is also a grand rose for pot culture, blooming even more abundantly than Mad. Chas. Wood, and propagates easily, and rapidly, by cuttings of green wood treated in the usual way.

I have been a good many years among the roses, and am not likely to go into ecstasies over anything new or of doubtful merit, and I unhesitatingly say that this is the finest rose I have ever seen so far.

EDITORIAL NOTES.

GLOXINIAS.—The article by Mr. Fyfe, in another column, reminds us of the great improvement in these beautiful flowers since Mr. Fyfe introduced the well-known G. Fyiana. Up to that time only the ones with horizontal and somewhat flattened corallas were known. He raised them with tubular erect corallas, a race which has continued popular to this day, and comprises some of the most beautiful of all in the class.

FLOWERS AT ENGLISH WEDDINGS.—Flowers enter largely into all English festivals, and a great deal of taste is employed in making the most judicious selections. At the recent wedding of the Duke of Norfolk we are told decorations surpassed anything hitherto attempted. On entering the church, large Camellia trees were seen in the distance, right and left of the altar, literally covered by hundreds of pearly-white blossoms. The trees, which were twelve feet high and ten feet through, filled the centre places in groups of fine foliaged plants, graceful Ferns and choice Orchids. A little lower down

within the sanctuary the eye rested upon some groups of plants, the centres of which were composed of marvellous specimens of Pitcher plants (Nepenthes), some of which were nearly ten feet high, and one of them (N. Rafflesiana) had over sixty finely developed pitchers on it; miniature Ferns and graceful Palms, amongst which were assorted the lovely spikes of the Odontoglossum Alexandræ, with numerous little white Hyacinths peeping out amidst green moss and Maiden-hair Ferns, rendered the floral display on the occasion complete. Mr. Wills, to whom these decorations were entrusted, informs us that nearly 3000 white Camellia blooms were used in them.—*Gardener's Chronicle*.

FLOWERS ON TOILETTES.—The *Ladies' Gazette of Fashion* says:

"A perfect wealth of flowers has been expended on the past Spring toilettes; indeed it would almost seem the gentle goddess had showered on them all her radiant treasures. Not merely the garniture, but the waistcoat, apron, or pocket itself is a mass of varied blossoms, and a sweet little innovation for a bridal robe is to suspend a lace satchel by strings of orange blossoms, secured with a hook of pearls. The tiniest of these flowers also dot the bouillonnés of tulle, Indian muslin, or gauze, which make most lovely trimmings on ordinary evening dress, replacing the wedding blossoms by eglantines, daisies, cowslips, buttercups, crowfoot, may roses, lilies of the valley, or any small field flowers. Quite an art indeed becomes the arrangement of dress blossoms; even paniers and robings are beds of posies and soft leaves, so beautifully harmonizing with the bloom of a youthful wearer. As a great contrast to the forget-me-nots, primroses, etc., we have also bunches of the largest flowers, to wit, a dress of Louis XVI brocade with the front of old gold satin veiled by puffings of maize tulle; here immense tulips were carelessly thrown over one side of the train, adorned in other cases by guelder roses and clusters of double chestnut. The tulip's fiery petals agree well with all the multi-colored textures, yet fashion has never before smiled on the gaudy stranger, probably on account of its peculiar stiffness. Now it is worn in compliment to the new queen of Holland, and no doubt for this reason the Chapeau Emma will have a long vogue. Of the finest Leghorn, it is enhanced by Dutch tulips, the various shades of which are minutely reproduced on the streaked ribbon.

Other huge flowers, placed quite on the tops of bonnets, with encircling leaves, completely hide the squarish crowns; those generally used for the purpose are the magnolia, rhododendron, chrysanthemum and garden poppy. To these, I far prefer the pretty floral head gears, provided the blossoms are very small. Real baskets of flowers are these bonnets of lilac, hawthorn,

NEW OR RARE PLANTS.

PANAX LACINIATUS.—This beautiful foliage plant is now in some choice collections, but not as common as its merits deserve it should be. Plants that are easily grown and adapted to decoration are much sought for, and for this the one here illustrated is particularly well adapted.



PANAX LACINIATUS.

may, etc., rivalled only by the chapeaux, resembling a daisy-spangled grass plot or a mossy bed dotted with florettes. I would not recommend, however, the bonnets wreathed with grapes and vine leaves, or intertwined with boughs of the cherry, apple or pear tree, with bloom, fruit and foliage."

It was introduced to culture a few years ago by the enterprising firm of B. S. Williams & Son, of Upper Holloway, London, who thus speak of it:

"This very elegant plant will be a valuable addition to a class much in request for table decoration; it is of medium growth, and when

about twelve or eighteen inches in height its elegance can scarcely be surpassed. The stem is smooth and slender, slightly mottled with brown, the leaves are alternate, and the leaflets deeply cut or lacinated, of a light or pleasing green color. Native of the South Sea Islands."

HYACINTHUS CANDICANS.—This pretty Summer blooming Hyacinth, which was first made known to Americans by a German exhibitor at the Centennial, is becoming a very popular bulb for Fall planting.

A STRIPED FORGET-ME-NOT.—The list of varieties of cultivated Forget-me-nots is by no means numerous, and the addition to it of a pretty novelty that Mr. Cannell showed us the other day is a welcome acquisition. Its flowers, which are of moderate size, have a ground color nearly white, with five stripes of blue radiating from the centre in a star-like manner, producing a pretty as well as quaint appearance. At present we are unable to speak of its habit, or whether it exists in quantity or merely as a solitary sport.—Garden.

SCRAPS AND QUERIES.

DALMATIAN INSECT POWDER.—We have had many inquiries as to where this can be obtained. We find on inquiry that it is so well-known an article in the drug trade, and so readily to be ob-

tained if one wants to oblige a customer, that the druggist who knows nothing about it can be safely set down as behind the times.

PROPAGATING DOUBLE PETUNIAS.—Mrs. J. M., Newton, Ohio, writes: "Will some one please tell me how to propagate a double Petunia? There are no seed pods formed yet, and I would like to know if I can grow some from slips? I have tried the common way but failed to get them to root. Is there any particular way of treating them to make them form seed pods? I have such a grandly beautiful one that I would like to propagate it in all its beauty if possible."

[Double Petunias are generally raised from slips or cuttings by florists. These are taken off before the plant has fully exhausted itself by blooming. Not the extreme points nor the extreme lower parts of the branches are taken, but those usually known as "half ripened." They grew very well in September. Sometimes where great certainty is required in getting the cuttings to grow some of the branches are cut back half way and new ones come out, and the cuttings are made from these before any flowers exhaust the branch. The best double Petunias rarely seed. They are obtained by taking pollen from half double flowers and placing it on the stigmas of the single ones. The progeny will be double in various degrees.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

The vegetable season is almost over, though some care may be used to advantage.

Tomatoes will still repay care bestowed in keeping them in shape. Those grown on stakes should be tied up, and will continue bearing for some time yet. Where the ground is very dry waste water from the kitchen will benefit them. Some say that if plants are raised at this season, or cuttings made from old plants now, they will fruit very early next year. It may be worth thinking of at this time.

Egg plants like plenty of moisture, with sun and air. If the ground be dry, give them abundant manure water; they will bear until frost.

Potatoes, as soon as the tops are well decayed, are best taken up at once, as they appear less liable to rot afterwards, than if left long in the ground.

Turnips also may still be sown. In fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

The main crop of spinach should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It

is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few radishes may be sown with the spinach for Fall use.

Cabbage and cauliflower are sown this month for Spring use. The former requires some care, as, if it grow too vigorous before Winter, it will all run to seed in the Spring. The best plan is to make two sowings—one early in the month, the other at the end. The rule is, get them only just so strong that they may live over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, brick or wood, sunk five or six feet below the surface of the ground, into which leaves, manure, or any waste vegetable matter is filled. When quite full it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the cauliflower is planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of cauliflowers. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The cabbage lettuce is the kind usually employed.

In planting fruit trees it will be found best to go to work as soon as the leaves change color. If they have good roots, are not dried before planting, and are hammered in very tight indeed, they need not be much pruned; but as the season advances before Winter sets in, prune in proportion. Many go to considerable expense in preparing ground for trees, but if the trees are heavily surface manured after planting, it often does just about as well.

Some talk, in preparing an orchard, about making "one large hole" for all the trees. This seems witty, but it is an expense which very few orchards will ever repay. Water is likely to stand in the deep holes we recommend; but in such cases we would, rather than go to the expense of subsoiling the whole orchard or underdraining, plant higher than they grew before—higher than the surrounding soil, mounding the earth, as it were, above the level. No water

will ever stand here. And the money usually spent on making "one big hole" of the "whole" orchard, or in underdraining, we would spend in annually surface-dressing the ground.

Trees that have long stems exposed to hot suns, or drying winds, become what gardeners call "hidebound." That is, the old bark becomes indurated,—cannot expand, and the tree suffers much in consequence. Such an evil is usually indicated by grey lichens which feed on the decaying bark. In these cases a washing of weak lye or of lime water is very useful; indeed, where the bark is healthy, it is beneficial thus to wash the trees, as many eggs of insects are thereby destroyed.

COMMUNICATIONS.

JAPANESE PERSIMMONS.

BY SAMUEL B. PARSONS.

In the June number of the GARDENER'S MONTHLY I noticed that E. Manning says: "The Japan Persimmon tree is like many other expensive curiosities extravagantly puffed by propagators, and which to the purchaser is only to end in chagrin and disappointment." He does not question the excellence of the fruit, because that is asserted by many undoubted authorities, but condemns it because it has not proved hardy with him. It must be borne in mind that the American Persimmon is a Southern tree. It is rarely found indigenous with us but abounds in all the old fields of the South from Virginia to Florida. While old trees have proved perfectly hardy here, Red Cedars, Altheas, Arbor vitæ, and other supposed hardy trees have been killed. Young trees of four to six feet high cannot be left unprotected with impunity. The orange cultivators know this principle well, for they lose thousands of young trees annually from a cold which does not touch trees ten years of age. The growth of young trees is succulent and late in maturing. That of old trees is short, hard and early in maturity. A young Bartlett Pear is often killed by a cold which does not affect the older tree. I think Mr. Manning would not discard the Bartlett for that reason.

He forgets too, that the Japanese Persimmons which have thus far been sent out have not been propagated in this country and have therefore not been "extravagantly puffed by propagators" who were Japanese. The truth is that Dr.

Loomis, a very intelligent gentleman who had resided in Japan and who had often eaten this fruit was so impressed with its excellence that he incurred the risk of bringing out a quantity of trees to this country, hoping that his countrymen would appreciate his efforts and sustain him. He issued a circular in which he gave unquestioned authorities for the excellence of the fruit, but did not attempt to fix the latitudes best adapted, as each variety had its own best latitude in Japan. These circulars with a large quantity of trees he placed in our hands to disseminate, knowing that we had a large experience with Japanese plants. These plants came to us dry from the voyage, having had no care nor special culture, and under instructions from Dr. Loomis we replaced all which did not grow of those which we sold. But coming from the opposite side of the globe where seasons are different, those which we planted out ourselves were very late in starting and made so succulent a growth that we did not think it safe to expose them the following Winter after our experience with young American Persimmons. Of eight which we left unprotected, four were killed and four are growing luxuriantly. Other parties have planted them on Long Island and lost none.

We hope to hear from others who have planted it. Those who have reported have been generally favorable. Hardiness is the only point on which we need information. There is little doubt that it will be hardy anywhere south of the latitude of Baltimore. That it will be hardy north of that line can be proved only by experience. Of its behaviour in this country we know too little yet to condemn it in any respect.

One of the largest importers of it assures us that he has known it to continue entirely dormant the first year after importation and grow well on the second. With us it has been as late as the 1st of August in showing life the first season after importation. Throwing it away at midsummer because it does not show life would therefore be a mistake. There is so much evidence of the excellence of its fruit that if it can escape the borer which is equally fatal to it and to the American Persimmon, and can be successfully grafted in the open air on our native stock, we may fairly hope that the old fields of the South in which there are millions of trees will be made full of profit to their owners.

I hope that Mr. Manning will be willing to wait

and see the condition of a Japanese Persimmon tree which has escaped the tenderness of youth and settled into the maturity of age.

FRUIT NOTES FROM INDIANA.

BY A. C. L., MADISON.

The Raspberry season is almost closed and it may be a matter of interest to many of your readers to learn the varieties that best succeed in the Ohio Valley, from Cincinnati to Cairo. Between the extreme cold of last Winter and drouth of this Spring and Summer the crop has been the shortest known for many years. The Herstine would be a universal favorite, but the past Winter proved that it was not hardy, nearly all of the plants were killed to the ground.

The Southern Red is nearly equal to the Herstine in all respects save that it is not prolific, but it is perfectly hardy. The Gregg has fully maintained the high character given it. It will supercede all other Black Caps here. The Pride of the Hudson was killed to the ground. Think of that! oh ye people that sold plants "perfectly hardy" at fifty cents each.

I am watching with great interest a few specimens of the Japanese Persimmon now growing on a little tree only four years old. I hope they will mature.

[We suppose these persimmons are in the open air, in which case we may look for its hardiness at Madison, Indiana.—ED. G. M.]

HARDINESS OF JAPAN PERSIMMON.

BY GEO. FOUST, BARNEGAT, N. J.

I have read with much pleasure the articles in your estimable magazine on the hardiness of the Japan Persimmon, and as far as I can see, the experiments were made on plants grafted on our American variety. Now, the general run of Japanese plants succeed admirably in this county, and generally prove as hardy as our natives; and why not this when the culture is properly understood? In the Spring of 1875 Engineer Rowbotham, U. S. N., arrived home after spending three years cruising in Japanese waters. When he called on me he had a wonderful story to tell of the Japan Persimmon, its size, lusciousness, beautiful color and fine taste, somewhat between an orange and apple. He brought home a few seeds for me to germinate for him, and being immediately planted, started with considerable vigor. I planted two

out, which by Fall made a growth of twelve to fifteen inches. Now these two plants stood out totally unprotected the Winter of 1875-'76, and on examination in the Spring found them entirely uninjured. Mr. Rowbotham then transplanted them to his residence at Haddonfield, N. J., but with what success I do not know, as I have lost sight of him since moving to this place. He is now on the U. S. S. Wyoming, and probably would answer any communication in respect thereto.

EDITORIAL NOTES.

THE CRESENT SEEDLING STRAWBERRY.—This variety is well spoken of in the West.

THE CUTHBERT RASPBERRY.—This variety seems to be meeting with praise all around.

TOMATOES.—The taste for tomatoes is increasing wonderfully in Europe, and American canned tomatoes have a great sale.

FORCED FRUIT AT NEWPORT, R. I.—Early in July, hothouse peaches found a ready sale at Newport at seventy-five cents each retail; and grapes at \$1.50 per pound.

EARLY GRAPES.—The first grapes of the season were in the St. Louis markets from Alabama on the 1st of July; the first in San Francisco on the 10th of July; and the first in Philadelphia on the 20th of July.

PESTS OF CALIFORNIA FRUIT GROWERS.—A correspondent of the *Pacific Rural Press* gives in detail an account of the pests of the California fruit grower; which are mildew on grapes, road animals, foxes of California, coons, squirrels, gophers, and birds. Of the last, it appears, swarms of robins come from the North and work havoc among the grapes.

THE COFFEE TREE.—Mrs. J. Atzeroth, Braidentown, Tampa Bay, Florida, has two coffee trees which have stood out and grown well, and for the first time borne berries this season. The gentleman who, a couple of years ago, offered we do not know how many dollars for a pound of American berries had better prepare the cash.

NEW PEACHES.—How easy it is to raise "new" varieties of fruit is seen by a circular before us in which nine are named and described, all having originated with one person. These new varieties are said to excel the many named varieties now on his place "in every respect."

CODLING MOTH IN CALIFORNIA.—California apple growers are alarmed at the spread of the Codling moth. Those who gather up fallen fruit, and scrape and wash the bark report good results even where the neighbors are a little dilatory in following their good example.

CINCHONA TREE.—And now the daily papers are getting excited over the supply of quinine, and there will soon be an application to nurserymen for trees to plant quinine orchards in Vermont. The one who wrote that he was about to plant a forest of Eucalyptus somewhere up there, but was "advised to get the opinion of the GARDENER'S MONTHLY, though not a subscriber," will no doubt want some.

THE SALMON BERRY, RUBUS NUTKAENSIS.—This is coming into great popularity as a Raspberry for the Pacific States. Here in the East repeated trials have been made with it, but the leaves are killed by a very slight frost.

CAPTAIN JACK STRAWBERRY.—This variety raised by Mr. Samuel Miller, of Bluffton, Mo., holds its own as against Wilson's Albany, its nearest competitor. It has many warm friends.

WILSON'S ALBANY STRAWBERRY.—This continues popular at the South. It has fallen off in the estimation of Northern growers, after a quarter of a century of praise.

PEAR GROWING ON THE PRAIRIES.—Some writer made a sensation a few years ago by asserting as the result of his experience that any one would be crazy who should in the future attempt to grow pears on the prairies. Of course those who have observed, know that there are very old pear trees in some parts of the West; but still the remark was thought to have much weight. A recent "College Quarterly" edited by Professor Budd, a careful horticulturist, refers to fine trees existing in Iowa and Illinois. There is no reason why the pear should not do well on the prairies as any other tree.

THE BEST STRAWBERRY.—We have looked about carefully this year to try to identify the "best strawberry," but as we felt inclined to record it, we would read in some reliable paper, or in some letter of the wonderful behaviour of some other, and have hesitated to cast our vote. Many of the new strawberries are very good, but we see accounts of wonderful things done by some very old kinds. One exchange is sure that "on the whole nothing will exceed the Longworth's Prolific in the number of good

points that make up a good berry." This is going back a quarter of a century; what will our improvers say?

BOOK GARDENING.—A Woodbury, New Jersey, farmer writes to the *Liberal Press* of that place about the short comings of Horticultural Book writers. Our friend believed implicitly in books, and when one good man thought that potatoes should be in three feet apart rows, he steadfastly believed, though more common sense hands demurred. They told him that a cart with manure could not be got through a field of three feet rows, without running in the row;—but he knew it would because the book said so. As he was "boss" he had his way, but the thing wouldn't work, and in spite of the good books his workmen now plant in two feet nine inch rows. The cart goes along smoothly. The workmen grin because they have beaten the "boss," and the latter grins because the book maker "sold" him.

OSAGE ORANGE HEDGES.—Discussions are still going on as to whether Osage Orange is cheaper than wooden fences. That depends. If wood is abundant it may not be. Some talk of the plants "robbing the earth for ten feet on each side, so that nothing will grow." This shows that the hedge has been badly managed. The writer has a hedge twelve hundred feet long, which admits of cropping to within three feet as well as any where else in the field. It has never cost the tenth part of what a wooden fence of any kind would have cost; but it costs about \$2.50 a year to trim and keep in order; and in this annual care perhaps a wooden fence has the advantage. Still in this part of the world the cheapest kind of a wooden fence would have cost \$120, and the annual interest of this even at 4 per cent. would have been more than the annual cost of the Osage Orange.

A well kept Osage Orange hedge is not a nuisance, nor is it expensive; the one that robs the ground for ten feet away is quite another thing.

EARLY TOMATOES.—A correspondent of the *Country Gentleman*, says that cuttings of tomatoes taken in the Fall will root, and notes that plants kept over Winter will give tomatoes two weeks earlier than the best encouraged seedling plants of Spring.

TESTIMONY ON THE SPARROWS.—An English paper thinks Englishmen degenerate when they come to this country, and supposes the English

sparrow does, if it is as bad as some American newspapers represent. But American newspapers are somewhat like English papers, in this, that they sometimes make a great story out of slender materials. This has been especially marked in articles on the English sparrow. It will eat bread, grain, bugs, caterpillars, buds, and other things indiscriminately rather than starve. It would live in a city, and get what it can from the streets in preference to any other mode of life. But when it is pressed it will go to the grain fields, or if these are not at hand perchance the fruit bushes. It is on the whole a very good bird; but it is by no means an unmixed blessing. How much of good or bad it has in its nature will depend on what the writer whoever he may be, saw just before he took up his pen to write. Just as we write, we see one running away with a "nasty black beetle;" and once while we were writing last Winter, when the snow was on the ground, we saw one trying to make a dinner off of the leaf buds of a Norway spruce. But we do not know that the tree is any the worse for it now, but we are glad the beetle has been devoured. It might have been a harmless one, but we did not like its looks.

A SAD FATE.—The *Lancaster Farmer* thus pathetically describes the "sparrow" situation in those parts:

"Our native birds have almost entirely retired from their old haunts, and have resigned the field to these impudent 'carpet baggers,' in disgust. Some time ago we noticed a poor lone little native sparrow sitting on a high post, mournfully overlooking Lancaster, something like a lone Indian overlooking the innovations of the white man. How similar their fates."

If any of our readers have a copy of the *Farmer* to spare it might be as well to send it with the above passage marked in deep black to Sitting Bull, or some other distinguished member of the tribe of "Lo—the poor Indian."

THE PROFIT OF CULTIVATION.—In all professions it is chiefly those who aim at excellence who succeed. In fruit growing the market is never "glutted" in good seasons to the grower of a superior article. Superiority in fact is the insurance against over-stock. On this the *Country Gentleman* truly observes: "Second-rate, scrubby, knotty apples find a slow sale at a low price. Those who with good culture, manuring, thinning, assorting and careful packing,

place the finest specimens before purchasers, obtain good prices and ready sales, and as soon as their products become known, they are eagerly sought on account of their excellent quality, even in abundant seasons."

SCRAPS AND QUERIES.

THE JAPAN PERSIMMON.—S. B. K., Houston, Texas, writes: "It is of much value to know the experiences of the correspondents on the hardiness of the Japan Persimmon. It is however a matter of so much importance that it would be a favor to know the views of the Editor himself."

any more than here. If we are not much mistaken, Mr. W. S. Carpenter, of West Chester, New York, had some in the open air to test years ago. Perhaps he could tell us about them. At any rate it is such experience that is wanted, and not the mere guess of the Editor, which might only prejudice the case.—Ed. G. M.]

THE HORNET RASPBERRY.—B. F., Bucatumna, Mo., inquires: "Is the Hornet Raspberry about which you gave such a wondrous account recently a new kind, for I find it in no catalogue?"

[So much the worse for the catalogues. We were not aware that there was anything "wondrous" in our statement; the facts were just as we stated them to be however. We give here an



HORNET RASPBERRY.

[The Editor can only form his views as any correspondent can, from the weight of evidence. As a mere "opinion," a mere guess while waiting for the actual experience it would be against the hardiness, because the plant is not new to cultivators. Ventenat, the distinguished botanist, in the early days of the French revolution, tells us there were large numbers of them growing in the celebrated nurseries of M. Cels, near Paris, from Japan seeds, and it is well known that they have been more or less introduced continually the past one hundred years, yet we fancy no one can refer to a full sized tree anywhere in Europe

illustration, not made from Major Freas' berries, which shows that his success in getting fine fruit is not exceptional. It is not new, but over a quarter of a century old, and none the worse for that.—Ed. G. M.]

BOWER'S EARLY PEACH.—From Morris & Miller, Frederick, Maryland, received July 30th, six inches in circumference, green with bright red cheek, stone partially adherent, flesh very juicy and sweet. The full value of a peach cannot be decided on a few samples in an editorial office. All we can say about this variety is that no one would want to eat a better

peach than these were. So far as the appearance and the flavor are concerned, we should say it was worth trying in a fair comparison with popular kinds of early ones, now much sought after.

ALPINE STRAWBERRIES.—C. S. Armprion, Ontario, Canada, writes: "There is in the nurseries of the Renfrew Fruit and Floral Company here, a patch of Alpine Strawberries that were planted two years ago. Last year they were all white, but this year they have changed to red, with the exception of a plant here and there. They join a patch of Wilsons. Can that have anything to do with it? Mr. Meehan please give us light on the matter."

[The only explanation we can offer is that a plant of the Red variety, which in some unknown way had become mixed with the others, has "struggled for life" with the white ones, and stands a good chance of a complete victory.—Ed. G. M.]

ORIGIN OF EARLY JOE AND BENONI APPLES. C. D., Newburgh, N. Y., writes: "The Early Joe originated in Ontario, County, and the Benoni in Massachusetts. Their locations were reversed in the last GARDENER'S MONTHLY."

PEACHES FROM PAINESVILLE, OHIO.—The seedlings mentioned in letter of M. B. B., Painesville, Ohio, did not come to hand.

WATERLOO PEACH.—Ellwanger & Barry, Rochester, N. Y., writes: "We send you by mail to-day, samples of the Waterloo Peach which we trust will reach you in good order. The fruit is not so large as usual, owing to the overloaded condition of tree, neither has it ripened so early. This we find to be the case

with all the very early peaches that we have seen thus far. Compared in size with Cumberland, Musser, Downing, Sanders, Wilder, and Mr. Davidson's, it is the largest of them all."

[The fruit came in excellent order, and measured each six and three-quarter inches in circumference, weighed two and three-quarter ounces, had a beautiful dark red color, a slightly clinging stone, and moderate flavor.—Ed. G. M.]

RASPBERRY FROM BURLINGTON, N. J.—We hardly know what to say of fruit sometimes sent to us, a few samples not being like what they are afterwards found to be. We can only say that some before us from Mr. John Churchman, appear to be of the same class as the Philadelphia, but are much larger and in every way better than any of this class we have yet seen. The stems were taken out in the usual way of marketing raspberries, and eight of them weighed one ounce. If all the other points which go to make up a perfect raspberry excel as size and flavor do, we should say Mr. Churchman has a very good thing.

FRUIT NOTES FROM MERCER CO., PA.—J. A. N., Indian Run, writes under date July 10th:

"Fruit prospects. Apples light crop here; pears and peaches medium crop; grapes much injured by insects; cherries and strawberries fine crop—of the latter on our grounds we have several acres, and can raise more plants of one hundred Crescent Seedlings, than we can of five hundred Wilson's Albany. Raspberries, Pride of the Hudson; failure here. New Rochelle do well if the fruit don't prove too soft for shipping. Near the oil regions here fruit finds a ready demand."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

EFFECTS OF FROST ON PLANTS, &c.

BY PROF. T. J. BURRILL.

The following valuable paper, was read at a recent meeting of the Illinois State Horticultural Society:

We all know that many plants are killed by even a short exposure to a freezing temperature, and that others, ordinarily considered winter-proof with us, are destroyed by an unusual degree of cold, especially in certain conditions of the plant tissues. It is further understood that, in some cases at least, quite as much depends upon the manner of thawing, as to the

final effect upon the plant, as upon the freezing. Somewhat tender plants supposed to be frozen, and certainly coated with ice, may frequently be saved by placing them in cool, shaded positions, or in cold water while thawing. So apples in tight barrels, shaded from the sun, or buried in the ground, may be subjected to almost any degree of frost, and if afterward slowly thawed in these situations, are slightly or not at all injured, while if thawed in the sun they quickly decompose.

What is the explanation of these and similar phenomena with which every one is familiar? No doubt some of the changes and their causes are not yet well understood, but much certainly is known, the main portions of which can be given in a few words.

If fermented cider is exposed to a temperature below that at which water solidifies, some persons have found out that the part which becomes ice is not cider at all, but upon removal and thawing is very near pure water, while the unfrozen portion is cider with emphasis. On one occasion a very estimable young man, well known to the writer, at an evening party learned this latter fact in such a practical manner that he has never forgotten that apple cider kept in a barn in Winter and drawn by boring through ice is intoxicating. Those who hang wet clothes upon lines to dry in Winter speak of them as freezing dry. The fact is the water, closely held in the fabrics by capillary attraction, is extracted, brought to the surface, by the action of the frost, and is carried off by the air currents. The withdrawal of the water from the cloth is precisely similar to its separation from solutions, as cider, sweetened water, salt water, etc.

The process is somewhat as follows: Upon the withdrawal of heat, the molecules composing water, previously moving freely with little or no friction upon each other, thus forming a true liquid, approach and cohere, forming a solid. But the attraction which thus binds together the molecules of water does not exist between those of water and the commingled molecules of other substances, hence these latter do not become attached; they remain floating in the still liquid portion. Ice having formed upon the surface, and consequently withdrawn particles of water from this immediate portion, equalization takes place in the remainder through the law of diffusion. Thus other molecules of water are brought in contact with those solidified and the ice becomes thicker

from additions upon the liquid side. Diffusion and equalization again taking place, the process is continually repeated, the pure water being extracted and the solution gradually condensed. The more watery the solution the more readily the operations are effected, that condensed and thick yielding slowly or not at all to the forces tending towards the result.

Now, all this is true in the case of the semi-fluid substances of plants. Green leaves and young stems may be observed coated with ice from the water extracted from the tissues, and yet close observation may show that the tissues themselves are still flexible, not frozen. This is beautifully shown in the little plant, often used for bedding purposes, known on account of the peculiar shape of the flower as the cigar-plant. If subjected to below 32° Fahrenheit in a damp still atmosphere, the roots being in moist soil not too cold, a layer of ice will be formed around the young stems of such thickness that it may be taken off as stout scales, separating readily sometimes from the still flexible plant. Upon close examination this ice is found to be composed of elongated crystals, radiating from the stem. Having received accessions from the plant end, the older portions of these crystals have been continually pushed outward. This loss of water leaves the half-fluid substances of the plant thicker or more condensed, unless, as may happen, the roots have kept up the supply. Often the ice forms within the tissues instead of outside, but it may then be found in localized places, the cells, perhaps, having been forced asunder by its expansion. In this case the collection of the ice crystals is the same as indicated above. The simple rupturing of cells, or their forcible separation, though not a good thing for the plant, need not cause death. By the extraction of heat and water the bark and outer layers of wood may shrink with such force as to cause cracks more or less deep in trunks and large limbs, but the tree may survive without apparent injury and the wounds rapidly heal.

If after the water of the cell-sap is thus partially congealed,—either without or within the tissues,—thawing takes place very gradually, it may be again absorbed and the normal condition restored. Anything which arrests evaporation, as sprinkling or plunging in water, has the same effect. The condensed, partially dried protoplasm and cell-sap receive the necessary amount of water to permit them to perform

their usual functions, and life and health continue. But should the separated water be removed, death occurs from the dryness of the tissues. With rapid thawing the water runs away instead of becoming absorbed. With a small amount of ice-formation, and so little disturbance of the fluids, recovery upon thawing is easy, but becomes more and more hazardous the lower the temperature to which the plant has been exposed. In like manner the same degree of cold has very different effects, according to the proportional amount of water in the plant. When very much, as in most rapidly-growing parts, freezing occurs sooner and progresses to a greater extent than when the relative amount of water is less, as in the Winter condition of trees.

Every school-boy knows that when ordinary black ink freezes, and subsequently thaws, it is no longer the homogeneous fluid it was before, but consists of water and separated particles of pigment; so starch-paste frozen and thawed loses its adhesiveness, the water and solid portions not again uniting. Eggs behave in the same manner.

Just so it is with plants. Having passed a given point in the disturbance of the normal composition of the semi-fluids, varying with the species, the primary condition is no longer regained when thawed. Sap is no longer sap, but consists more or less of solid particles and water. As the roots cease to perform their functions when exposed to a given amount of cold, death may take place from the fact that while the drying effect of freezing proceeds above, the required corresponding supply is cut off below. Hence trees deeply planted and well established would not theoretically be so liable to injury by freezing, though the trunk and limbs be equally exposed, as those whose roots lie near the surface, or are in any way defective. It is said that the English ivy is capable of withstanding our winters if the roots are set below the frost line in the earth, and on the northern side of a building. It is certain that a vine has occasionally survived among the many that have perished, and this may be the explanation. As the roots of our ordinary cultivated plants are not adapted for healthful action in water itself, but only in a moist soil, another argument for deep drainage is presented. Soil drained at least three or four feet deep, naturally or artificially, appears to be necessary to preserve the tops of trees from injury by frost, and six to ten feet would be still

better as a safeguard. Early maturity and perfect ripening of wood are well known as the best prophylactics in this line at our command.

CARNIVOROUS PLANTS.

BY JAMES TAPLIN, MAYWOOD, N. J.

Although I am not a believer in feeding plants with raw flesh, I am of a different opinion as regards the vapor from ammonia, having employed it years ago in various plant houses with good results by sprinkling the floors and filling the evaporating troughs on hot water pipes with strong liquid manure, when the houses were shut up in the afternoon.

I used it in vineries, peach houses, cucumber and melon houses, and pine stoves, and also in Orchid houses. In all cases it improved the color and size of the leaves, and also the fruit and flowers. Of course, it requires discretion as to time of using it. I employed it during the time of most vigorous growth, not when the fruit was ripening or the plants in flower.

There is nothing new in my plan, for many years ago, before hot water was employed for heating houses, excellent cucumbers and pine-apples were grown by the heat of fermenting manure, in which the ammonia generated acted no small part. There was far less trouble then to keep down red spider and thrips, than since fire heat has been generally used, and the crops were generally good; in fact, one of the best crops of melons and pineapples I ever saw was in the Royal Garden at Frogmore, grown by dung heat. No doubt the regular moisture given off by this system did much towards success, but the vapor being charged with ammonia was the secret.

The direct feeding of raw meat to the foliage is much like the principle advocated many years ago of burning dead horses in new vine borders. For a time the results appeared in wonderful foliage and large fruit; but when the carrion became decomposed, all the roots decayed and the border became a soapy mass, through which no air or warmth could pass, and the vines and borders had to be removed. I removed one such border, and saw the results. No doubt some will say that this is not a parallel case to feeding plants through the leaves; but my experience with *Dionæa* has been that when a large insect was caught and began to decay, the leaves which held the insect decayed also; and when a number of flies, etc., were caught in *Sarracénias*

and Darlingtonias, they decayed the pitchers, for I have had a number of large plants spoiled for the season from this cause.

LEAF ABSORPTION.

BY JAMES M'PHERSON.

You sometimes have your say about the English journals discussing matters easy of solution, self-evident, and long ago proven to the satisfaction of every one on this continent at all interested, etc. Now I find you devoting considerable space to a question of little practical importance to anybody, viz., whether leaves absorb moisture—which they sometimes do, of course—or whether the presence of moisture in the atmosphere checks evaporation—which is equally a matter of course.

I agree in the main with Peter Henderson's logic, but think the absorption question could have been more practically settled by his taking a well-wilted plant, weighing it after divesting it of every particle of soil, immersing the leaves alone in water, and then weighing it again after recovery by such immersion. A gain in weight will be found in the case of nearly all plants except aquatics, whose leaves frequently repel moisture.

As for the question whether such moisture enters the circulation, that is not so easily answered; the professors interested must use water colored by some very finely triturated pigment if they wish to settle that question. The Bromeliad business settles something. Their structure enables them to withstand severe droughts, as does that of Cactæ, and even of many Orchideæ, Nepentheæ, Cycadeæ, Filices, etc., etc. They can wait quite a time without either roots or leaves for the moisture which will encourage them to put forth what stands for both, and they will unquestionably absorb it through their pores without any roots at all in the soil, and often without any discernible ones out of it. I need give no instance beyond the cutting of a Dendrobe, the stem of a Cycad or an Oleander, any of which will begin to grow suspended in an atmosphere constantly at the point of saturation. Nay, I cannot omit a more remarkable instance. I have frequently seen that pest of the coffee estate, *Ageratum Mexicanum*, grow for weeks when accidentally thrown by the weeder among the branches of the shrubs during the monsoons.

GIFT DER SCHEEZE A SCHANSE.

BY GEO. FOUST, BARNEGAT, N. J.

An American citizen of Teutonic proclivities went into a prominent lager beer saloon and called for one beer and some of the best Limburger cheese. The flavor of the cheese not pleasing him, he called the proprietor and denounced him for not keeping a first-class article. First-class in this case means the loudest smell. The proprietor—a German who has had his eye-teeth cut—took in the situation at a glance. Casually looking up, he observed the American citizen had a pair of very large feet reclining on the table in close proximity to the cheese. "Sherusalim!" exclaimed he, "takes dem feet down and gift der scheeze a schanse."

Now I would like to observe to Mr. Henderson, to give the leaves a chance. Don't putty up one end of a cutting and throw it upside down in water, and expect the cutting to carry on its normal functions. A man can breathe through his nose, but stop up his mouth so that he cannot take food, and what is the consequence? Why, the man will die. And this rule holds likewise in plant life. Why do we clean the leaves of our plants? Is it not for the purpose of keeping the breathing pores open, so the plant can perform its functions of exhalation and respiration? How is it that a cutting of *Coleus*, etc., if thrown in a shady place, will root and grow without its stem being covered? And what sustains the cuttings in the propagating bed and enables them to become callous and form roots? Is not the plant sustained through its leaves, and thereby enabled to root and grow?

Now Mr. Henderson partly agrees that Bromeliaceous plants do receive nutriment from the surrounding atmosphere. And why not other plants, too? Is not Mr. Henderson's argument a Summer joke, of which he is the centre, and intended to stir up his fellow florists from the lethargy of the heat and dull business?

In conclusion, I would like to know why it is you cannot grow cauliflower in Philadelphia? Here, where I am, we can grow it as easy as cabbage. Is it that in the former case you have not the saline atmosphere which it needs, while in this place the air is full of it, and therefore the plant breathes it and laughs and grows fat?

SNAKES SWALLOWING THEIR YOUNG.

BY D. F. W., NASHVILLE, TENN.

Snakes do swallow their young. When a boy

and living in Orange County, New York, about 1837 to 1840, I suddenly came upon a snake known as the speckled and striped, or garter snake. It was disposed to fight as I thought, showing much excitement and alarm. I was surprised at its demonstrations, remained quiet and watched it; when to my astonishment a number of tiny snakes rapidly approached her and began running into her mouth. It was only the work of a minute or two when all were stowed away within the body of the parent snake, and she attempted to slowly crawl away and get out of danger. I placed my foot on her head, with a forked stick held the body at length, and with my knife ripped her open and counted twenty one young snakes taken out of her. I have known a species of the black snake do the same thing. The rattlesnake, *Crotalus horridus* also swallows its young at the approach of danger.

Some people who have captured these reptiles, and afterwards the young came out of them, were lead into the erroneous belief that they are viviparous instead of oviparous. I may have something further to say about the anatomy of these reptiles before the year closes, that is not to be found in any Natural History I have seen.

ABOUT THE HARDINESS OF TREES.

BY T. T. FORFAR.

I have often wondered why our nurserymen or horticultural societies have not supplied us with complete lists as to hardiness of the different varieties of fruit and ornamental trees, shrubs, etc. I am well aware that there is a great variation of climate and soil in the same latitude, but this can be taken into consideration by the tree planter and acted on. Of apple trees we have partial lists, but there are still many varieties of apple that are comparatively hardy that are not given in these lists. Of pear, plum, peach, cherry, and nearly all of our introduced ornamental trees, we can learn little or nothing except by personal experience. Now it appears to me that with a little observation by our nurserymen and horticultural societies, lists could be made out giving the comparative hardiness of all the different varieties cultivated. They could be corrected one with another until they were entirely revised and complete. Until this is done tree planters in the Northern States and Canada will be at a great disadvantage, having little or nothing to guide them except

their own experience. We know that trees are killed by frost in different ways, but *never* when the wood is *properly* ripened. There must be a superabundance of sap in the trunk or branches before frost will cause any ill effect. Now it would be an easy matter for nurserymen to make a note of the time of ripening of the wood of the different varieties cultivated, and the percentage killed of each variety by frost.

The high state of cultivation in a nursery will generally cause trees to be later in ripening their wood than where they only receive an ordinary orchard cultivation; consequently notes taken on nursery rows would be of the greatest value in a season in which all varieties ripen their wood well. The comparative earliness could then be seen. Here in Canada the effects of frost are generally seen in three different forms:

First—A sudden severe frost setting in early in the season will expand the outside of the trunk while the heart is still unfrozen, and split the tree. The split is always on the side most exposed to the wind.

Second—The tree being expanded by frost, when the heat of the sun becomes great enough, through the course of the winter, a strip on the south or southwest side becomes thawed and contracts, splitting away from the part that remains frozen, or bursting the sap vessels, thereby retarding or entirely stopping the circulation in that part.

Third—The young shoots having more sap in proportion than the trunk or old wood, and being easier and more frequently thawed and frozen, the sap vessels become completely clogged, in which case the sun and air will soon dry them up.

So far as my observations have gone, this action of the sun on frozen sap vessels appears to me to be the true cause of the pear and apple blight, the sap vessels becoming partially clogged. So long as the strong upward flow of the sap continues, no effect will be seen; but as soon as the leaves have attained their full growth and the circulation becomes weaker, then a portion of the sap will remain stationary at the partially clogged point. Warm weather setting in, fermentation takes place, and we have blight.

EDITORIAL NOTES.

BEES AND PASSION FLOWERS.—A writer in

Nature, says that bees which feed on the Passion Flower become stupefied; and this accords somewhat with our observations. They do not become actually stupefied, but they are so enthused that they will often remain a couple of hours at work on one flower.

ORIGIN OF WHEAT.—The *College Quarterly* says: "Since the days of M. Fabre, our leading botanists have admitted that it was most probably derived from *Ægilops ovata*, a grass native to the plains of India." We do not recall the name of any leading botanist who admits this. As we understand it is generally believed that M. Fabre had been in some way imposed on. The writer of this grew the *Ægilops* for two successive years, without noting the slightest tendency to become wheat; and he concluded wheat would as soon turn to chess as this grass to wheat.

THE DOCTRINE OF MORPHOLOGY.—It is almost wonderful that the doctrine which teaches that all parts of a flower are modified primary leaves, should have such universal assent, when but a comparatively few years ago it was laughed at by the most intelligent men of the day. Speaking of the theory, an editorial article in *Paxton's Magazine* for 1844, says:

"There is something so monstrous, so degrading in the idea, that the mind which contemplates all things as beautiful and perfect in their creation, revolts at it."

GROWTH OF ROOTS IN AUTUMN AND WINTER.—It has often been placed on record in American publications during the past thirty years, that in this country the fibrous roots of trees grow during the Winter. By the following from the *Gardener's Chronicle*, it appears that they also grow in this way in France, though it is not generally believed to be a fact in the experience of planters in England:

"M. Resa, as quoted by M. Micheli, says that the roots of deciduous trees grow in Autumn after the fall of the leaf till the growth is checked, but not altogether stopped by Winter frosts. In the case of Conifers the growth of the roots ceases in Winter, to be resumed in Spring."

SCRAPS AND QUERIES.

POVERTY IN SCIENCE.—A Correspondent says: "That is all wrong (in GARDENER'S

MONTHLY page 254,) about Agassiz. He did not 'leave quite a large estate.' He cannot be said to have left anything of his own making or saving. His son's wealth was made entirely by his own energy, skill, and good fortune."

[We are thankful for the correction, which it is due to the facts should be made. At the same time the point may be reiterated that it is not for the good of science that the poverty of its devotees should be commended, and the utter disregard of the means of subsistence held up to the young as worthy of imitation. While we all despise the person who makes the pursuit of truth wholly subservient to what he can coin from it, we see no necessity for a total abandonment of all thought for one's material interest. We see no reason why Agassiz's son's life may not be as prolific in benefits to science because he has taken a little time to make wealth by 'his own energy and skill,' as his father's was who really seems by our correspondent's note to have thought he had 'no time to make money.' It may once in a while occur that the scientific man, who neglects his material interests, succeeds in benefiting humanity; but as a general rule there is no being so pitifully useless as a poor philosopher.—ED. G. M.]

PLURALS OF PLANT NAMES.—M. J. B., West Philadelphia, writes: "Reading the *London Garden* recently, I learned that Mr. Elwees showed an interesting collection of cut flowers, consisting of *Calochorti*, *Brodiaes*, *Alliums*, and *Gladioli*. Will you please inform me by what rule in botany we are to give a Latin form of plural to *Gladiolus* and *Calochortus*, while *Allium* and *Brodiaea* are to have an English one?"

[We have asked the same question ourselves in the past, but never heard the answer. Our correspondent should address those papers in which the differences occur, if he really seeks an explanation.—ED. G. M.]

MORPHOLOGY OF A PEACH FLOWER.—Mr. J. W. Kerr, Denton, Md., sends, August 13th, a peach branch with six leaves and terminal flowers. It is an excellent illustration of morphological law. An ordinary peach bud is an arrested branch. The little brown scales covering the petals are arrested leaves. In this case the "arrested branch" has grown a little after having been partially on its road toward a flower. The branch grew after the petals were formed and before the bud scales were established, and

therefore they are now true leaves. This specimen furnishes the valuable lesson which we do not know has ever been taught before, that in the transformation of primordial leaves to flowers, petals are formed before any steps are taken to make the bud scales. We see here the order in which the business is carried on.

We have seen similar growths in the apple, but this is the first instance in a peach.

FRUITING OF THE ARCTOSTAPHYLOS UVA-URSI, OR BEARBERRY.—Mrs. E. S. F., Nantucket, Mass., writes: "In *Flowers and Ferns of the United States* in speaking of the common Bearberry, *Arbutus*, *Uva-Ursi*, it is said that although the flowers grow in clusters, the berries,

so far as the author has observed, are single, but one of the cluster coming to maturity. Now the Bearberry grows profusely upon the sandy plains of Nantucket, and a small party of botanical students succeeded, with very little research, in finding numerous clusters of four berries, several clusters of five, and even one of six. The only difficulty here seemed to be to find any single berries. Thinking you may like to know the habit of the plant in a place where it is so much at home we have concluded to send you some specimens in support of our statement."

[These were four and five berried clusters, and one collected by Miss L. Owen had six berries.—ED. G. M.]

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

RESPONSES AND NOTES.

BY C. E. P., QUEENS, L. I., N. Y.

In the July number of the MONTHLY I noticed a few remarks on the double flowering Chinese Cherry. I should like to have shown you a fine specimen of the old pure white double flowering Cherry that we had here in full blossom about May 10th. Imagine a Cherry tree about forty feet high and covered with millions of its pure white double blossoms. Could any one wish for anything more magnificent? Why is it not planted more extensively? You have done your readers a service by calling their attention to these handsome ornamental trees. A tree of the old variety should be found in every collection. Have any of the readers of the MONTHLY flowered this rosy pink variety? A full description of it, together with the size of their specimen, would be interesting to many of your readers.

Another rare tree, and one well worthy of general cultivation, is *Kolreuteria paniculata*. We have a few specimens here, about twenty feet high, and it is now covered with its large

panicles of yellow flowers. This variety attains to the size of a small tree only, and on this account can be planted in places where other trees would occupy too much space. This tree deserves much more attention than it receives, and should be more extensively planted. It is a native of China, and is perfectly hardy here.

In a note to the MONTHLY, some time since, I mentioned *Magnolia macrophylla*. I omitted to state that it is perfectly hardy here. It flowers about the first week in June. The flowers average when fully expanded thirteen to fifteen inches in diameter and the leaves average over two feet in length. This tree ripens a quantity of seed every year. *M. tripetala* is another very good hardy variety, but can in no way compare with *M. macrophylla*. We have several specimens here about twenty feet high. This variety is rather a faster grower than *M. macrophylla*, but does not form such a handsome tree; it is apt to grow rather crooked, and on this account should be kept tied to a stake while young. *M. conspicua*, a Chinese species, forms a tree of superb beauty when in full blossom. I should like to have shown you our tree of this variety when it was in bloom; it was the admiration of all who saw it. Our specimen is about thirty-

five feet high. This variety is perfectly hardy, and ripens a quantity of seed yearly. These three varieties should be extensively planted.

I was very much interested in reading Mrs. D. W.'s description of the wild flowers of South Carolina, and I hope to see many more such articles describing the native flowers of our Southern and Western States in the MONTHLY hereafter. But why is it that such beautiful plants have not been introduced into cultivation before this? What could be more handsome than the *Styrax* and the *Andromeda* as described by Mrs. D. W. And the *Sarracenia*s; why should they be left unseen in the Carolina meadows? Is there not in South Carolina some enterprising person who would form and offer for sale collections of her native plants? It would pay some one to do so. I must confess I envy Mrs. D. W. her drives among such beautiful plants. By the way, however, is *Sarracenia purpurea* found growing wild on Long Island? I have often searched for it, but in vain; and now I am told it does not grow on Long Island. What say you or any of your readers?

I have a plant, a *Cyperus*, under the name of *Cyperus Lopus*. Now I see in the catalogues *C. Lepus*, *C. Laxus* and *C. Laxpus*. I suppose they are all the same. If so, which is the correct name? [There is a *C. laxus*, and a *C. leptos*. Ed. G. M.]

Will Mr. John Paget please give through the MONTHLY his method of forcing strawberries, and such other information that in his opinion be necessary to enable a person to force them successfully? His success with strawberries is remarkable. What variety or varieties would he recommend?

Will some of your readers please give us their experience with the Beauty and Sharpless Seedling Strawberries, and how they compare in size, flavor and productiveness with Chas. Downing and Seth Boyden?

In the June number of the MONTHLY, page 176, I noticed a few remarks by Mr. Isaac Hicks on the Meriam Pear. We have one dwarf tree of it here, and that is enough. It casts its leaves about the tenth of August, and besides I have never seen one pear on the tree. I think our tree is correct to name, as we obtained it from Hovey & Co. Louise Bonne de Jersey is casting its leaves very early this season. Some of our trees have only a few leaves left on them at this early date.

Have any of the readers of the MONTHLY

fruited *Hovenia dulcis*? I am told that it is a new Japanese fruit. Can this be true? I doubt it; as I do not recollect ever seeing the name before. What is it, anyhow? Will some one give me some information concerning it?

NOTES AND QUERIES—NO. 4.

BY JACQUES.

W.B.—John Ray was the first to raise Zoology to the rank of a science; and the first scientific classification of animals was attempted in his "Synopsis of Quadrupeds." Modern botany began with Ray's "History of Plants," and the researches of an Oxford professor, Robert Morrison; while Grew divided with Malpighi the credit of founding the study of vegetable physiology, which has made and is still making such advances.

Mr. Max Cornu has detected a new malady which attacks the plants of the Rubiaceæ grown in hothouses. It appears that an *Anguilula* deposits its eggs in the roots, which then swell and decay, the plant perishing rapidly. Precipitated sulphur has been recommended as an effective remedy.

The Wheelbarrow.—Pascal, the philosopher, born 1623, we are assured the world over was the inventor of the wheelbarrow. How long it took to find this indispensable machine more useful, perhaps, than Babbage's Calculator, and then Schentzl's, and now Thompson's. The English government expended for Babbage's intended machine seventy thousand pounds, and the result is an unfinished affair placed in the keeping of King's College, London. We can do without it, but who would say the same of the wheelbarrow?

Black Walnut.—A correspondent who possesses, as he believes, the largest Black Walnut tree in the Eastern States, and which he wishes to sell, had the curious reason given for non-purchase, that trees near mansions had almost always a ring for hitching, or a horse-shoe imbedded out of sight. These would surely injure the saw. It is probable that experience has taught the sawyer to beware. Moral—Don't put iron into trees.

People are to live and enjoy.—Gardens afford the many great enjoyment, and hence give a profit; and yet not a word is said or a professor engaged to teach the young how to garden or plant. If the boys must thumb a Greek lexicon

give them a cherry tree to study in. It is stated in the *American Naturalist* that there is no chair of geography in any American college, while in France the State has endowed seven. Some of the German universities are also provided with professors of the sciences, and three in Switzerland. America has thus something to do.

Perpetual Felicity.—The writer noticed some five years ago a brilliant description of a rose named *Felicite perpetuelle*, and ordered it from London. The "felicity" has not arrived, for it has bloomed this season for the first time, and very sparsely.

It is asserted that only those birds which live upon fruits, or the mixed nectar and insects extracted from flowers, usually possess brilliant colors.

Suspension of life is a topic of discussion. This is produced by *Mandragora*, and extends over several hours. Its use was continued probably till the thirteenth or fourteenth century. From its action comes the Shakesperian legend of Juliet. The wine of *Mandragora* has the power of suspending without destroying active life. This wine was the *Morion* of the ancients. The plant from which *Morion* was originally made, the *Atropa belladonna*, has similar properties to the *Atropa Mandragora*. Nitrate of Amyl has the power to suspend animation, and so have other things. Thus there is nothing new in this matter.

Cinchona Culture in British India, is the title of a useful pamphlet by Sargent-major G. Bidie, of the Madras Museum.

W. G. Farlow, Assistant Professor of Botany at the Bussy Institution, Harvard University, has been appointed Professor of Cryptogamic Botany in the University proper. This is the first professorship in this important and difficult department established in the United States.

Things to Remember.—Borage is a useful plant for bees and produces much honey. The Scillas or Squills once bought, and planted from two to four inches beneath the soil in Autumn, will multiply rapidly year by year. No better use of a small sum can be made. There are some three dozen specimens of various and effective colors. The Laburnum, *L. vulgare*, is poisonous, both seeds and juice. A few seeds eaten by children will soon cause death. Hard-shelled almonds come to perfection in the climate of Philadelphia; the Pecan nut does not always, though one in Germantown matures every year.

Lost and Found.—Many curious things of lost and found are told. The following is assuredly true. A ring was lost. Mrs. B., while dibbling holes for small plants of celery, dropped her ring into one of the holes. A plant was duly inserted, and doubtless through the lost ring, and as the root grew the ring must have become imbedded in its substance. Long given up, this ring made its appearance the following Winter among the soups at dinner in a portion of the celery root.

In flowers there are the most varied contrivances for the preservation of their organs against the attacks of animals of all kinds. In some we find the result obtained by the secretion of distasteful substances, such as alkaloids, resins and etherial oils. It is remarkable that as a rule herbivorous animals have a distaste for flowers. Anyone may observe how carefully cattle and sheep avoid plucking most of the flowers which abound in their pasturage. The beauty of the blossoms have no attraction for them; the richness of the odors seem only to repel them. It is only when the flowers are fresh that they are thus carefully avoided by ruminant animals. When their work is done and they are dried up the chemical compounds change; they are now readily eaten mixed with hay.

The Government Council of the Canton of Berne have issued a very wise ordinance. The beautiful Alpine flower, the "Edelweiss," has, it appears, almost disappeared in many mountainous districts. Its sale has been used as an excuse for beggary, and so the council is determined to put a stop to the extinction of the beautiful plant. Persons plucking "Edelweiss" up by the roots will be fined from five to fifty francs. In future only the full blown flower may be taken. This is evidence of paternal government turned to good account.

The Strawberry.—A correspondent who notes that Shakespeare missed nothing, and who is a student of the great author, remarks that in Richard III, Act 3, Scene 4, the following passage occurs:

"My Lord of Ely, when I was last at Holborn, I saw good strawberries in your garden there. I do beseech you send for some of them."

But in those times the delicious berry as we have it was unknown. Dependence was had upon the Alpine, just as we see it now brought by children in Switzerland. In 1824 the Botanical Society of London instructed James Barnet, of

Chiswick, to draw up a report of the kinds cultivated, and the result was propitious. In the beginning of this century the strawberry began to assume the proud position which it maintains. The first marked improvements were seedlings from American species. The Roseberry in 1810; the Downton in 1816; Kean's Seedling in 1823; the Elton Pine in 1828; whilst Myatt followed with his Pine, Prince Albert, Eliza and British Queen. On this side the ocean we have latterly seen vast improvements. Does any one know of a really perpetual bearer?

NOTES AND QUERIES.

BY W. G., NEWPORT, R. I.

The following questions, suggested by articles in your journal, will I hope find a place in your department of Notes and Queries:

1. In Vol. XX, p. 291, Mr. Drew, of El Dorado, Cal., has an interesting paper on the California varieties of *Ceanothus*. Are any of these hardy in the Eastern States? If so, from whom can they be procured?

2. The same writer describes in Vol. XX, p. 227, *Rhododendron Occidentale*, and suggests that it will prove hardy at the East. Has this suggestion been confirmed by experiment? Where can plants be obtained for trial?

3. In Vol. XXI, p. 132, the Rev. Henry Ward Beecher recommends *Ligustrum Japonicum* to all lovers of fine shrubs. In all the catalogues of dealers in plants to which the writer has access, this species is spoken of as tender in our climate. Is it quite certain that *L. Japonicum* is the plant referred to? Parsons classes *L. coriaceum*, *L. ibota* and *L. variegata* among half-hardy shrubs.

NOTES.

BY I. C. M., CAMDEN, N. J.

In referring to page 234 of *GARDENER'S MONTHLY*, it seems to me the "Stag's Horn Fern" is the *Polypodium aureum*. As I call to mind the manner the furry stems creep over the surface and sometimes over the edges of the pots, it is sometimes called "Rabbit's Foot Fern."

I was much surprised yesterday, August 1st, to find one of our largest *Ailanthus* trees in full flower. The air was as redolent with the "perfume of heaven" as I ever knew it in the early Summer days. I have not observed the second

flowering of this tree before. I am sorry to find that the Ivy has suffered so badly; nearly two-thirds of the vines are dying or dead. What can be the cause of this? Surely not the weather, for we have many times had colder Winters than the last.

EDITORIAL NOTES.

EDITORIAL TRAVELING NOTES.—An editorial life is peculiar. The editor has two selves. In the field of duty he has to forget the one, and be the other. To him a friend is on a par with an enemy. He often praises the work of those he dislikes, and criticises that of those he is intimate with, as if he knew them not. Again while to most persons the blessings of life are "here to-day and gone to-morrow;" the editor is gone to-day, and here to-morrow. Much has to be done in a short time; type as well as time and tide, for no man waits. I often feel when traveling how much I miss. There are friends everywhere. I want to see beauties; I want to enjoy scenes that I would love to study and never forget; but "to-morrow" will come and I must be home at work, so I usually go with the tide and float along on the first wave that strikes me.

Here, in Boston, my friendly wave landed me in Forest Grove Cemetery; and it was a piece of good fortune, for I had often heard of its beauties, and found it fully up to what I had heard. It is not a landscape cemetery in the full sense of Spring Grove at Cincinnati, for it is evident the lot-holders have considerable control over the planting, and this naturally prevents harmonious effects in matters of detail; but there is enough of artistic beauty to place it far ahead of the heterogeneous mass of marble and bushes which make up the gardenesque in so many cemeteries of even high pretensions. But the absence of intrusive as well as exclusive boundary fences by the numerous lot-holders, large and small, is striking, and commends the spot to one who believes that death levels all. As I have said there are many incongruities. Why, for instance should money be spent in making an elaborately ornamental piece of masonry, all the costly and beautiful details of which are to be subsequently wholly hidden by clinging vines? Now, there is nothing so beautiful as vine-covered walls; but it is evident the archi-

tect knew nothing about this, or never thought of it. Again we have long stretches of ornamental wall, wholly to be hidden by planting, as if the pretty structure was some unsightly object to be planted out; rock-work with palms and other things that are anything else but rock-plants; and other little inconsistencies that cannot but strike the eye of one guided by recognized artistic rules. Some of these may be noted in this cemetery,—they would be wholly overlooked if it were not for the high reputation it enjoys as a model work, and which in the main it well deserves. But here let us say a word of praise for the gardener in charge, for in few places of this class have we seen so much neatness and general industry displayed in keeping everything in first-rate condition. Bostonians are very proud of this cemetery, and they have good cause to be. It is open freely to everybody six days in the week, and to none but the lot-holders on Sundays.

The botanic garden at Cambridge claimed a few hour's attention, and I was glad to meet with Mr. Falconer the gardener in charge, whose intelligent articles on flowers are so highly appreciated by the readers of the *GARDENER'S MONTHLY*. Mr. Falconer is a comparatively young man, of medium size, and somewhat slender, but with great working activity, and unless the future prove very unpropitious, will probably leave behind him a good record for usefulness to American horticulture. It is many years since I saw the botanic garden, and I was agreeably surprised at its transformation from its old style—the stereotyped botanic garden with which all over the world we are all familiar—to a real beauty-spot; at least a spot as beautiful as it is possible to make a botanic garden so long as it is thought necessary to have the plants arranged like shelves in an herbarium. The plant houses, herbarium, library, and other buildings are on an extensive plateau, bounded by a slope. From this terrace we look down some feet to the flower garden. The centre of this is a pond for aquatic plants, and around this are arranged in segments of circles the flower beds. The pathways are about as wide as the beds, made of grass, and kept neatly mown. Here and there were plants in flower; but as the Spring flowers were gone and the Summer flowers scarcely in season, many of the beds were bare, and seemed too long for even some friendly mass of weeds, in order to have something to do, for even

the dull clod in this busy world detests idleness. Here are the beds for "Rununculacæ," "Liliacæ," or what not, but only the labels are there now in many cases. The most complete success is in the rockeries, in which are many plants which will only thrive in such situations and persistently set all "classifications" by herbarium rule at defiance. It is to the great merit of the rock garden here that it is made to suit the wants of plant growth, rather than some imaginary piece of scenery; for here very often comes in the opposite horticultural extreme, the sacrifice of the useful wholly to some ideal. As long as a botanic garden must be made subordinate to the rules of the herbarium, we do not see how such a garden as this at Cambridge could be made more beautiful; and the comparative reclamation from its former ugliness reflects great credit on the taste of Prof. C. S. Sargent under whose direction the changes have been made. With the end of this season Prof. Sargent retires from the directorship of this garden, in order to assume the duties of Professor of Arboriculture in the Arnold Arboretum, which garden has hitherto divided with Cambridge his attentions. As the first professor of Arboriculture chosen in this country he will have an eminent field; but those who know of his incidental work in this direction, as already accomplished, have a forecast of how well his future work will be done. The botanic garden will in future be under Professor Goodale's management. I found Prof. Goodale, though in his holiday season, busily at work with an independent class of students. He seems to have a peculiar power of making abstruse physiological points very clear to his students. He does not teach merely what has been already taught, but encourages original investigations. At the time of my visit he was explaining the Embryology of the seed by the aid of a seed of common "Shepherd's-purse," in which, assisted by a powerful microscope, even the earliest processes of seminal cell germination could be seen. In the herbarium Professor Asa Gray, small of frame, and grizzled by the passage of near seventy winters was still as actively at work as one of thirty. I left him studying out a set of his favorite Asteraceous plants, which had been collected on some government exploration. It is amazing how Dr. Gray gets through with so many useful tasks. His "Structural Botany," which is really a wholly new work succeeding to his "Text

Book" is just fresh from the press; while his regular systematical works are still going on. Mr. Sereno Watson his able assistant I found also at work on "bibliographies" and "revisions," labors that bring him innumerable thanks from fellow-botanists, though with little chance for the fame which more original investigations earn.

Professor Farlow it was also my good fortune to meet on this occasion. His time is wholly occupied as professor of Cryptogamic Botany, a department of science that has become of great practical importance of late, since the great influence for good or evil which fungi exercise on all organic things has become better understood. Altogether the excellent garden, full of rare and valuable plants; and the admirable staff of instructors with, we presume, plenty of money to pay them with, give a chance for useful botanical work seldom met with elsewhere.

A hasty visit to the Horticultural Society rooms brought to my view one of the best horticultural libraries I ever beheld. What a splendid chance for the intelligent horticulturist. The society has been very fortunate in its investments, and should it ever reach old age, is out of the reach of want. By its liberal premiums and other good deeds it is still doing good work which may some day perhaps be extended. But I find I must still give my few hours in Boston another letter.

THE POST OFFICE LAWS.—Recently a kind correspondent, anxious to serve the GARDENER'S MONTHLY, sent a package basted at the ends with sewing cotton, instead of merely turned down or tied with string. For this indiscretion the editor was fined by the post office authorities of Philadelphia one dollar and ninety cents! Now the most a person can do in a closed parcel is to write a little, which at best would not damage the United States mails to the extent of over three or six cents,—and if one were to be fined to this extent for another's fault, there would be no serious cause of complaint. But why the United States should get \$1.90 because of a bare chance it was damaged three cents, passes our comprehension. We have suggested before, that on all closed packages the sender should be compelled to put on three cents more than the "third class rate," or that double or treble this amount, for the additional trouble, should be added to the collection if omitted; and it is a matter of surprise to us that there is no one in the National Congress with

sense enough and sufficient influence to get the Post Office Committee to see a point like this.

AGRICULTURAL EDITOR OF PHILADELPHIA PRESS.—The Germantown *Telegraph* says:

"Thomas Meehan, Esq., the distinguished scientist of Germantown, who had been connected with the *Press* of this city for fifteen years as editor of the agricultural and horticultural department, retired from the position some three or four months ago, and hence is not responsible for statements and opinions therein since that date."

It may be added that while the former agricultural editor of the *Press* has the best wishes for a newspaper with which he was for so many years connected, and even refrained from any public notice of the disconnection in order that his old friend might have the benefit of the silence, if benefit it be, he cannot regard the statement above made as more than just, when he was supposed in some quarters to be responsible for such statements as that the coffee tree is now under successful farm culture in Connecticut, and the editorial assertion that our native grape vines all came originally from France, have become acclimated, and are now being returned to the French because the acclimatization has rendered them proof against the Phylloxera!

THE PLANT PATENT.—Mr. D. B. Wier has hit on the sensible plan of trying what can be done practically in this way, instead of writing long chapters on what might be done. While our views must be candidly expressed—that we do not think anything of value will come from the plan—we may be wrong, and shall be glad if we are, for as things are at present the raiser of a new and good addition to our collections seldom gets a fair reward. An experiment in the proposed protective measures must give us valuable experience. Mr. Wier has raised a number of new cherries, and has entered the names as trade marks, which no one can make merchandise of without his authority. As already said, we hope the experiment will be successful, and that Mr. Wier will reap a rich reward.

SEDUM ACRE.—C. E. S. is correct about this plant. Many thanks for the suggestion. There is, of course, no such plant as *Sedum* "acer."

SCRUBS AND SPIRES.—It is worth the while of the next author on the "evolution" of language to inquire what influence the typography-

cal error has on change. It is a very natural mistake to print spire for spike, and in our experience we have to continually run our pencil through the printer's r. In like manner, the compositor is more familiar with scrubs than shrubs, and unless the proof reader is versed in technicalities, scrub is very likely to prevail. We were reminded by a recent article on the "Tropical Scrubs of Queensland," in *The Scientific American*, how often we meet with the same expression in the public prints; and even first class agricultural journals are just as likely to tell us of the spires of grass as of their spikes.

LILY EMBLEMS.—Hulme says that the religion of many people in Ireland can be understood by the lilies—Catholics planting the white and Protestants the orange lilies in conspicuous places in their door-yards. The white lily is dedicated to the Virgin Mary, and is used in immense quantities in the Catholic churches on the second of July. It was supposed in old times that it was the white lily that was alluded to by the Saviour; but modern research has shown that if a true lily was really meant, it was the orange lily.

THE BULB SEASON.—Mr. J. H. Krelage writes from Haarlem that the committee of Dutch bulb merchants have requested purchasers to give the growers more time than usual in which to make shipments, as the very rainy season has been unfavorable to the rapid drying of the bulbs.

HON. ELI K. PRICE.—This distinguished gentleman, who has given so much of an active life unselfishly to the best interests of Philadelphia, and to whom Fairmount Park owes so much, recently passed his eighty-second birthday, on which occasion the inhabitants of West Chester gave him a brilliant ovation. Referring to this, a city paper incidentally says:

"As a lawyer his ambition has been to elevate that profession, and among his achievements in legal literature was the production of a valuable work on "Limitations of Actions and Liens Against Real Estate." He is also the author of the Real Estate Act of April 18, 1853, better known as "The Price Act." As a member of the Park Commission he has shown great interest in that grand public resort, and it is partly due to his interest in our city that Philadelphia is soon to have a forestry museum established in the park. He is an enthusiast on botanical matters, and his residence in this city is sur-

rounded by some of the choicest plants obtainable."

GLASNEVIN BOTANIC GARDENS.—It is beginning to be a complaint in England, as well as in our country, that favoritism and not merit often fills good situations. The successor to David Moore, of the Glasnevin Botanic Gardens, is Mr. F. W. Burbidge, and it is pleasant to know that if there were favoritism here, the merit was at least its equal.

COL. WILDER.—Our readers will be glad to know that Col. Wilder has so far recovered from his serious accident of some months ago as to be able to walk to his greenhouses by the help of a man and a cane, and to walk about his library wholly unaided. It is too much to expect that he will preside at the meeting of the American Pomological Society at Rochester; but he will at least be able to prepare the address, which is more than was hoped for some time ago.

GEOLOGICAL SURVEY OF INDIANA.—Eighth, ninth, and tenth annual reports from Prof. John Collett.—Under the lead of Prof. E. T. Cox, the survey of Indiana progresses very satisfactorily. There is one feature especially valuable in Prof. Cox's reports: he not merely notes what is found beneath the surface, but what is on it likewise, and hence Botany has some consideration as well as other branches of science. It is strange that this branch of science should ever be neglected by any State survey—but it sometimes is. In this particular volume we have a catalogue of all the ligneous plants of the United States, so that those into whose hands the report may fall can check off those which are indigenous to the State. This is an excellent idea, and must result in a very complete catalogue of Indiana trees and shrubs, and with their geographical ranges.

REVISION OF THE NORTH AMERICAN LILIACEÆ.—Mr. Sereno Watson, one of the most devoted and hard-working of our leading botanists, has just contributed to the Proceedings of the American Academy of Arts and Sciences an elaborate paper on the North American Liliaceæ, which includes the greater part of North American bulbs. It is a very difficult order to arrange, and the continual discovery of new facts necessarily leads to new views of arrangement. Sometimes we find the species in the condition of a befuddled individual who hardly knows his own name. Prof. Alphonso Wood, for instance, describes a new genus which

he calls *Brevoortia*,—and we have *Brevoortia* *Ida-Maia*. Dr. Gray makes it *Brodiaea* *coccinea*. Now Mr. Watson makes it *Brevoortia* *coccinea*. All these subjects, however, must be left to the critical botanist. To horticulturists, Mr. Watson's task is very valuable, as giving in one chapter an arrangement of all the known species, for a knowledge of which he has hitherto not known where to look. Of true Lilies, Mr. Watson makes thirteen distinct North American species: *Lilium Philadelphicum*, *Catesbæi*, *Washingtonianum*; *rubescens* (hitherto thought to be but a variety of *Washingtonianum*); *Parryi* (found as yet only in San Bernardino county, California); *Grayi* (a new species, though specimens were collected by Dr. Gray in North Carolina nearly forty years ago); *parvum*, *maritimum*, *Canadense*, *superbum*, *Columbianum*, *Humboldtii*, and *pardalinum*. It will thus be seen that many kinds, supposed to be species in horticultural works, are regarded as mere forms or actual synonyms of something else. For instance, *L. penduliflorum* is *L. Canadense*; *L. lucidum* is *Columbianum*; *L. Bloomerianum* is *L. Humboldtii*, and *L. Californicum* is *L. pardalinum*. It seems by no means certain that some of those now ranked as species will continue such in future "revisions;" or if so, some now regarded as varieties may be advanced to higher honors. The genus *Calochortus* has swollen wonderfully, thirty-two being described. The *Allium*, or onion family, is also a large American genus, no less than forty-six species being noted here. Mrs. Treats' *Atamasco Lily* here finds, for the first time, a place as a true species, and is described as *Amaryllis Treatiæ*.

NATIVE PLANTS OF VICTORIA—By Baron V. Von Mueller.—Scientific men usually are great workers; but few we fancy get through so much as Baron Von Mueller, the Government Botanist, of Melbourne, Australia. This time it is a valuable work, in cheap form, of the native plants of Victoria, comprising all known from *Ranunculaceæ* to *Polygonaceæ*, profusely illustrated, and so well described that any one with the rudiments of botany can easily make out an unknown plant. The work is evidently intended for the "people," as there is an evident care to avoid all "hard words" except when certainly unavoidable. Most persons can understand at once what is meant by kidney-shaped, while many would have to turn to the glossary to find what reniform meant; and "margins of the pe-

tals overlapping in the bud," carries as distinct a meaning with it as if the same idea were expressed by the choicest Greek derivative.

A YEAR IN A LANCASHIRE GARDEN—By Henry A. Bright. From MacMillan & Co., New York, through J. B. Lippincott & Co., Phila., Pa.—Over and over again, many of us have repeated that a garden is the purest of all human pleasures, but it becomes in time to have about as much meaning as an oft-repeated prayer. We talk of gardens, and grow our flowers and fruits and vegetables; but the real pure pleasure which a true love of gardening can give is the good fortune of but few to enjoy.

It is our mission to heighten gardening enjoyment; and it is because such works as these fall in with our own work, that we welcome them. The author knows what a garden is for, and as he tells us what was done during the year in the garden; what bloomed and what ripened, and what was expected, and what was accomplished; he throws around his story a charm which the reader soon learns to enjoy with him. Whoever may have a garden no matter how small, will love it the more after reading this book, and new pleasures will be given to the familiar walk, and the most old-fashioned flower will have a new interest to the one who follows Mr. Bright through his little book.

He is speaking about a May scene in his English garden, and he thus refers to one of our familiar flowers:

"In the middle of each group of beds, which the grass walk divides, is a circular bed full of American shrubs. Among these shrubs are several rather fine *Palmyras*. Very often they do not flower at all, or at best bear only a blossom here and there. This year they are laden with blossoms which are now ready to burst, and I shall have a show of *Palmyra* flowers such as I have not seen since two-and-twenty years ago. I wandered among the *Palmyra* brakes in the forests of Virginia; and the flower is so beautiful; pink outside, and, as Ruskin says, 'inside is like the beating out of vases in hollow silver,' beaten out apparently in each petal by the stamens instead of a hammer!"

GARDENING ILLUSTRATED.—This is a new cheap horticultural venture in England, which Mr. Robinson of the *Garden*, has added to his cares. It is only a penny—two cents a week. We hope it will add as much to his pocket, as it does to his credit. Then he will be rich.

THE VALUE OF ABSENCE.—The editor has been off pulling weeds and tasting fruits about Saratoga, Lake George, the Adirondacks, Rochester and elsewhere. When he gets back on the first of October, and sees how good this number is, he will no doubt want to go again.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

GEORGIA HORTICULTURAL SOCIETY.—The fourth annual meeting was held at Macon, on the 29th of July, President P. J. Berckmans, presided. The meeting was well attended. Mr. Berckmans in his annual address, expressed gratification at so many being present in spite of the great discouragement of severe losses to the fruit crops from the past unfavorable Spring. He spoke of the unremunerative fruit growing in the South as an impossibility, when understandingly pursued. There was often a drug in poor fruits, but never in the best. The experience of the past twenty years has shown that the demand has kept full pace with the supply. Vegetable culture was also progressing rapidly and profitably. He advised great care in the selection of varieties, especially in early peaches. In this the business was certainly being overdone. The railway companies were willing to give the best encouragement to Southern shippers as soon as it was evident that there would be a permanent trade and enough to make it worth while to give such encouragement. The Southern Express Company, he especially praised for its liberality to fruit growers. In regard to shipping North, he said: "At our previous meeting I mentioned that Georgia peaches had received the highest quotations in New York during May, June and July, 1878. I am happy to state that the earliest shipment of peaches to New York has again been made this year by our Vice President, Mr. Samuel H. Rumph, on the 20th of May last, the variety being the Alexander. The market reports also have quoted Georgia peaches higher than those received at the same time from other States, thus proving that our State has attained the front rank among the fruit-producing sections of America. A proud distinction which our people must retain by careful cultivation, and still more careful selection in packing and shipping to Northern markets."

No report was made by the committee on ornamental planting. The president said full attention would be given to this branch in future proceedings of the society.

Mr. Stark said that in his district pears and grapes were the leading fruits. The pear blight worse than last year; the Leconte exempt. The Japan Persimmon is fruiting in Thomas County. Peaches are liable to rot before maturity. They do best in the northern part. Dr. Hape said so bad had been the fruit season that even the blackberry had been a partial failure at Atlanta. Grapes are healthy, and the yield is fine. At Atlanta there is no abatement in the love of fruit culture.

The exhibition of fruits was the best ever seen in the State, and elicited the admiration of many ladies and gentlemen who visited it. P. J. Berckmans, was re-elected president for another term, amidst great enthusiasm. A committee reported that over-heating manure and improper drainage, are the causes of the pear blight, which last year affected twenty per cent. of the trees. The Leconte Pear was free from blight, but of poor flavor. Mr. Rumph had fifty-one varieties of peaches on exhibition; of grapes eighty varieties were on exhibition. In regard to shipping pears, Mr. Woodruff said the fruit was easily wrapped in paper and sent in forty-five pound crates.

Dr. Hape thought there was no necessity to strap the crates, that it added to the cost. He used poplar slats for his crates. Mr. E. C. Grier replied that experience showed that it was best to strap the crates. The weight of one-third bushel crate was eighteen pounds. The straps which were best and lightest were thin white oak strips. Mr. Berckmans stated that he had been in late years shipping in one-third bushel crates without straps and found no difficulty at all. Mr. Sanford said that they had adopted twenty-two by eighteen inches boxes, holding three pecks. He wrapped all of his pears; one ream of paper wraps fifty crates. He had shipped pears with space left in the crates to New York, and rats destroyed them. No space was needed. The size of the crates was spoken of. Mr. Berckmans stated that in regard to the size of crates the society should let the demands of the market govern the size of the package.

Much attention was given to the subject of wine making. Mr. Woodruff was called on

and responded, giving many practical suggestions. His process was described at length, giving the German method. The grapes were crushed and the juice pressed out and placed in a large cask and allowed to remain some days, a sand bag being placed over the bung hole to exclude the atmosphere, but to allow the gases to escape. Afterward the juice is drawn off into casks and care taken to keep the casks full.

On shipping peaches. The Downing Peach was said to be slightly earlier than Alexander, the general favorite hitherto, and two stars were given it.

Of pears, Mr. Berckmans spoke highly of the B. F. Fox, a California variety.

In grapes. Among the new varieties Mr. Anthony highly commended the Irwing as bearing very fine fruit with bunches twice the size of the Concord. It was evidently hybrid, and pronounced as belonging to the best class.

The Japan Persimmon was discussed. Mr. Sanford stated that in February, 1878, he heard of the fruit and sent for some. He planted them, and last Spring one small tree had forty persimmons on it. He cut all off except ten. They grew until they were as large as crab apples when eight fell off. A rain caused another to fall, and at last the other fell to the ground. The taste was quite sweet but no seed was found in the fruit. Colonel Stubbs and Mr. Berckmans reported success with the Japan Persimmon. Mr. Berckmans had received two boxes of the dried persimmons from China. They were about two inches long; the taste was somewhat like a fig, and somewhat like a date. He planted the seed and they germinated.

THE PENNSYLVANIA HORTICULTURAL SOCIETY.—This society holds its fifty-first annual meeting in its hall in Philadelphia this year on September 16th, 17th, 18th, and 19th. Premium lists may be obtained from A. N. Harrison, secretary.

AMERICAN INSTITUTE.—The forty-eight annual exhibition will be held in New York, from September 17th, to November 22d. The premiums for fruits, flowers, etc., are very liberal, and copies of the schedule may be had of John W. Chambers, secretary, New York.

AMERICAN POMOLOGICAL SOCIETY.—The annual meeting will be held in Rochester, New York, on Wednesday September 17th. It promises to be one of the most interesting meetings

in the history of the society. The Western New York Agricultural Society, and the Western New York Horticultural Society, will have its meetings at the same time. So that the attractions are numerous, and the attendance will probably correspond. James H. Kelley, Rochester, New York, will take charge of all express paid packages of fruit intended for the Pomological Society. Essays or verbal addresses are expected from Professors Goodale, Lazenby, and Messrs. Wm. Saunders, Isidor Bush, P. T. Quinn, Wm. C. Barry, P. J. Berckmans, Dr. John A. Warder, and Rev. Dr. Burnett.

THE PENNSYLVANIA STATE AGRICULTURAL SOCIETY.—This body holds its annual exhibition this year in Fairmount Park, Philadelphia, from September 8th, to September 20th, in the Main Building of the Old Centennial Exhibition. The holding of a State Fair in one building like this, is something to reflect on, and nothing like this has ever occurred before. If there are yet any persons who have never seen one single building which covered twenty acres of ground, they will probably not neglect to see it with the additional attraction of the State Fair. In the schedule we note liberal premiums for fruits and vegetables, and ornamental plants, flowers, designs, etc.

NATIONAL AGRICULTURAL CONGRESS.—This meets in Rochester, September 15th, and will close just about the time the Pomological Society begins. Mr. Jonathan Periam, editor of the *Prairie Farmer* is secretary.

THE WESTERN MICHIGAN AGRICULTURAL AND INDUSTRIAL SOCIETY, will hold its first annual exhibition at Grand Rapids, on September 22d and 27th.

AMERICAN POMOLOGICAL SOCIETY.—As the meeting of this Society at Rochester, N. Y., takes place at the same time with the Fair of the Western New York Horticultural Society (September 17-19), and the hotels are likely to be crowded, persons who expect to attend, will avoid much inconvenience by writing to the proprietors of the hotels to secure rooms in advance. The Osborn House, which will be the headquarters of the Society, will charge members three dollars per day, and the Whitcomb House near by, will charge two dollars per day. The Clinton Hotel and National Hotel are also central and good at two dollars per day. Fifteen silver and bronze Wilder medals will be awarded for meritorious objects.

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

As the planting season is upon us, it may be of service to remark that few persons seem aware of the great variety of the material with which their gardens may be adorned.

As we go through the country the same half-dozen or dozen kinds may be seen everywhere; the same monotonous planting all through. The planting is evidently the result of an unacquaintance with the immense variety which the best modern nurseries offer. There could be no more profitable use of time by those intending to plant than a few hours at a first-class nursery.

The Summer in the greater part of the Eastern States has been peculiarly favorable to vegetation. When the seasons are wet or dry the vital powers of the plants are lowered, and they are easily injured, even by moderately severe weather in Winter. It is this which often makes Fall planting seem undesirable. The next Winter, unless unusually severe, will be a very favorable one on vegetation, and those who plant this October and November will no doubt have unusual success. Even plants which have not been transplanted, but are usually regarded as somewhat tender, will probably suffer but little; still, protection of such plants will be in order as usual. It may be as well to remember that keeping off the cold dry winds is often a suf-

ficient protection. Many use evergreen branches, and these are useful if not placed too thickly. In great abundance large quantities of turpentine are pressed out by frost, which injure the plants covered by these pine branches. In like manner fresh manure from stable yards is injurious, by reason of the salt it contains. Many plants are seriously injured in Winter by these injudicious coverings, without the user having the least idea of the cause. Wherever earth can be used, as for instance in the case of small things, there is nothing like it for protection. Half hardy vines can easily be bent down and lightly covered, and small roses can have the young tops cut back and the earth drawn over them. When large they may be taken up, laid on their sides, and replanted in Spring.

We have already spoken of the value of lilies and other Summer flowering bulbs in gardening, and that the Fall is the time to replant and care for them. The hardy or Holland bulbs, as they are often called, because mostly imported from Holland, where they are grown extensively and thrive better than in any other country, are almost the only ornament of the garden in very early Spring. Commencing with the little Snow-drop, in this section in March or early April, followed by the Crocus, Hyacinth and Tulip, they make a most interesting succession during the months of April and May, when but for them

the garden would be bare enough. In addition to this they are unrivalled for culture in the house during the Winter months. As nearly all can be grown in so many ways—in pots, or baskets of sand or moss, or in vessels of water—they are an almost endless source of interest and amusement in every stage of growth. With a little moss from the woods or swamps, a few quarts of sand, some pots or a shallow box or two, and a few dozen Crocuses, early Tulips, Hyacinths and Narcissus, any one is prepared for a pleasant little Winter garden. Of course, a few Hyacinth glasses are desirable, but not essential. Very pretty boxes can be made with a little taste and patience, and some sticks and bark from the woods.

In addition to the kinds above named, the Anemone and Ranunculus are beautiful Spring flowers for all who have rotten cow manure to fertilize the ground with, and will give the beds a little protection from the severest weather. We are also very partial to the old Crown Imperial, of which there are now several varieties of red and yellow.

Many kinds of hardy annuals flower much better next Spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in Spring they must be transplanted to the desired position in the flower border.

Few things are more valued in Winter than a bunch of Sweet Violets. A few may now be potted, and they will flower in the window towards Spring; or a small bed of them may be made in a frame, which should be protected by a mat from severe frost. To have Pansies flower early and profusely in Spring, they may be planted out in a frame, as recommended for the Violet.

Herbaceous hardy border flowers are often propagated in the Fall by dividing the roots; but, unless it is convenient to protect the newly-made plants through the Winter, it is better to defer this till Spring, as the frost draws out of the ground and destroys many. Where it is now resorted to, a thick mulching of leaves or litter should be placed over the young stock when transplanted.

Chrysanthemums now in flower should have their names and colors rectified, against the time when in Spring they may have to be replanted; when they can be re-arranged with accuracy and satisfaction, according to the owner's taste.

Amongst the pretty effects which we have seen this year, have been several attempts at forming Winter gardens of evergreens. It was suggested in England a few years ago, that the massing system of growing flowers in Summer was objectionable in this, that it left the beds naked through the Winter. To remedy this, they had a reserve garden of evergreens, from which the plants were taken every year after the frost had killed the flowers, and set in the places where the flowers were. This makes the flower garden look green at least during the Summer season. This reserve garden of evergreens is usually put into an out-of-the-way place, and does not look very inviting in the Summer time. In the case we have reference to, the reserve garden had the evergreens set rather wide apart and the spaces between filled with Coleus, Achyranthus, and other colored and variegated leaves. The effect was very pretty indeed.

COMMUNICATIONS.

RURAL CEMETERIES.

BY JOHN QUINN, ASTORIA, N. Y.

If my memory is not at fault, it was Father La Chaise who first conceived the idea of a Rural Cemetery. He it was who first invoked the aid of the landscape gardener to make the last resting place of the dead attractive—to divest it of the dreary monotony of the country churchyard described in "Gray's Elegy."

The great cemetery near Paris—"Père La Chaise"—bears his name. I have not the data at hand to state accurately which American city was the first to inaugurate a rural cemetery—whether it was Philadelphia, with "Laurel Hill;" Boston, with "Mount Auburn," or New York, with "Greenwood." It is enough for the purpose of this article to state that there is not a city of any pretensions in the United States today that does not take a local pride in her rural cemetery. With singular unanimity the founders of these cemeteries have selected locations from which the landscape views are superb, whether one takes "Greenwood," at New York, or "Lone Mountain," at San Francisco; the views from the latter are unrivalled. It is as an educator of the masses in a taste for trees, plants, flowers, and statuary that I wish to write of Rural Cemeteries. In this respect they have taken the front rank. Here the multitude see the two great arts of sculpture and landscape

gardening carried out side by side. Without the aid of the latter, the cemetery would lose its individuality and sink to the level of the old churchyard of our ancestors.

In the well-kept Macadamized roads, the beautiful trees, the close-cut turf, the shapely mounds and terraces, the trim hedges, and the brilliant array of flowers, the genius of the landscape gardener shines forth. Thousands of our people all over the land, in the adornment of the grounds around their homes, have drawn their inspiration from the work of the cemetery. A place of general resort for all classes, its very atmosphere settles the mind down into that thoughtful mood that receives impressions easily. As a disseminator of a taste for floriculture, the cemetery is a thousand fold ahead of the public park. The latter has fallen into the hands of the corrupt local politicians, and its management is behind the age.

The cemetery or public park that secures the services of a first-class professional gardener as superintendent is sure to outrank its fellows in the race who ignore this idea, and think that any man with ordinary ability can manage a park or a cemetery. I have been convinced of this by a recent visit paid to "Washington Park," Albany, N. Y., and to "Forest Hill Cemetery," Utica, N. Y., both managed by plain, practical gardeners. On entering either of those places, one sees in the beautiful flower beds cut in the green sward and planted in the latest style of the art, that the early training of both these gentlemen has asserted itself. They are introducing all the newer evergreen and deciduous trees, and thus spreading a taste for them among the people that one sees reproduced in several suburban homes.

There are several cemeteries near our large cities (three of them on Long Island) that make no attempt whatever at floricultural display, except what individual lot owners do in a primitive way. If I have said anything that will wake them up, I shall be satisfied.

THE CLIMBING HYDRANCEA.

BY LOUIS BOEHMER, HOKKAIDO, JAPAN.

I notice in the GARDENER'S MONTHLY a discussion on the *Schizophragma hydrangeoides*. I hope to send you next summer a photograph of one I know of growing on the island of Yezo, by which you may judge of its great beauty.

Col. Clark had not the advantage of seeing this plant in its great beauty, for he did not ar-

rive here till the end of July, 1876, when the beauty of the plant was over; and besides, that season was remarkable for drouth, when everything suffered here.

I do not suppose Col. Clark claims the credit of introducing this or the *Cercidiphyllum*, as I gave him the seeds which he took to the United States; and at the same time I told him of other persons in America to whom I had sent seeds some years before, and who have plants growing from these seeds. Others no doubt are claiming this credit for him without his sanction.

Those who wish to study the flora of these parts of our country will find the leading ones figured in Siebold's Flora. I have frequently met Mr. Hogg here collecting. He must have introduced many of our species.

A FINE WEEPING BEECH.

BY J. FRAZER, ROCHESTER.

In accordance with a wish expressed by you some time since in the GARDENER'S MONTHLY, that parties having fine specimens of ornamental trees would report them, I would inform you that I am the possessor of a fine specimen of Weeping Beech, forty feet high, with many of the branches drooping twenty to twenty-five feet; and also another forty-foot specimen of *Ulmus viminalis*; both trees imported from Mr. Rivers and planted where they now stand thirty years ago.

I have also now in flower a *Clematis Jackmanii*, covering a space on my house side 10x8 feet, and covered with bloom to the amount of 1200 to 1500 flowers, opened and buds. Also another *Clematis* "Jack," which, with *Honeysuckles aurea reticulata* and *Halliana*, have clambered up and around the conductor pipe of my homely residence until they have reached the roof; and I would observe that the dark purple star flowers of the *clematis* peeping out among the green and gold foliage of the *Lonicera* presents a very pretty appearance.

VIBURNUM NUDUM.

BY J. M.

During July and August our grounds suffer in appearance for the want of shrubs in flower, and anything attractive then is welcomed. The *Viburnum nudum*, though not in flower within these months, is yet most beautiful with its berries. It flowers in June, and after this, is soon covered with green berries, hanging often in

great clusters. These berries in time turn almost white, then change to rosy pink, and at last to a deep purple color. Often the whole of these colors are to be found on the same bunch—one berry changing color a little in advance of the other. There are other native viburnums valuable in the same way, but none that are as good as this one.

EDITORIAL NOTES.

A NEW STOCK FOR ROSES.—The *Journal of Roses* says that *Rosa polyantha*, a species recently introduced into France from Japan, is likely to prove an excellent stock for grafting roses on. But we doubt whether it will be for us any better than the common Prairie Rose for this purpose. *Rosa polyantha* is said to be very sweet-scented, and will probably be worth introducing for its own merits.

THE BOSTON PUBLIC GARDEN.—The Boston papers speak in high praise of the Boston Public Garden, which, under Mr. Doogue's management, are said to be very beautiful indeed.

VANILLA TREES.—The delightful fragrance of the flowers of the Paulownia has obtained for them the name of "Vanilla trees." The English papers complain of thus robbing the Vanilla of its name; but it must be borne in mind that the "Vanilla" did not come by its name honestly. According to DeCandolle, the Heliotrope is the "original" Vanilla.

GARDENING AT SALT LAKE CITY.—By the list of premiums of the Fourteenth Annual Exhibition of the Desert Agricultural and Manufacturing Society, to be held on the first of October, we may see by the offers what are the chief products of a city built upon the desert, and sustained by irrigation. The "best farm fenced and cultivated if not less than 100 acres," shows that one can cultivate a good extent of land by these artificial waterings. The crops are "cotton, tame-grass, lucerne, clover, flax, hemp, indigo, madder, wheat, barley, oats, rye, sugar cane, potatoes, mangel wurtzel, cabbage, parsnips, carrots, beets, onions, squash and beans."

That forestry is not neglected by the Salt Lakeians, is shown by premiums for "best ten acres of forest trees, not less than one thousand to the acre, three years old," and ditto of sugar maples; and the silk culture receives an offer of reward for mulberry trees. The ornamental

is not neglected, and there are premiums for ornamental trees "planted in a garden, or by the road-side." Besides this, we notice the advertisement of Mr. Reading as "landscape gardener," showing that tasteful gardening has at least hope for encouragement.

As a guide to the fruits thriving at Salt Lake City, we notice offers for "Summer, Fall, and Winter apples, peaches, grapes, plums, quinces, cherries, figs, gooseberries, currants, raspberries, blackberries, and strawberries."

Besides, there are numerous offers for plants and flowers, showing that gardening is making at least as fair headway in this far-away city as in older and more nature-favored places in the Union.

VIBURNUM Plicatum.—We annex a reduced cut of the *Viburnum plicatum*, or, as it is popularly called, the new Japan Snowball. It is now



well known, and esteemed for its value in ornamental gardening, and can be had of almost all our leading nurseries. It is far superior to the old Snowball in its habit, in which indeed there is little comparison. Its large heads of pure white flowers are very attractive in June and July.

MEMORIAL TREES.—On the recent visit of the Marchioness of Lorne to Toronto, on the 5th of September, she planted a memorial tree at the request of some citizens. The kind of tree selected is not stated.

GROUNDS OF THE LEHIGH UNIVERSITY.—The grounds of this great institution have re-

cently been completed from plans made and executed under the direction of Mr. Chas. H. Miller, the consulting landscape gardener of Fairmount Park. The newspapers of that region speak in the highest terms of the beauty of those grounds, as improved by Mr. Miller.

SINGLE TUBEROSES.—There is a tendency in the Tuberose to produce plants with single flowers, to the annoyance of the lovers of the real double Tuberose. But of late the single flowered form has been in demand for its earliness. It is in the Philadelphia market two weeks before the double, and brings good prices.

SCRAPS AND QUERIES.

ROSES, GERANIUMS, ETC.—A. C., Watsonville, Santa Cruz Co., California, writes: "Seeing you answer questions from correspondents, I should like to have you answer the following questions, if it is not too much trouble: 1. What is the matter with my roses? They put out their leaves and flowers very well early last Spring, and then in a short time the leaves turned spotted and dropped off; put out another crop of leaves, and they dropped; and another crop again, which dropped off also; making three crops of leaves this season. I send you a specimen to examine. 2. Is the Maréchal Niel rose hardy, and what kind of treatment does it require? Last Spring I made up a club of fifteen members and sent to the Innisfallen Nurseries for roses and plants, and received 135 roses and others. Among the lot there were 11 Maréchal Niels and 13 Duchesses of Edinburgh, and there are but 1 Niel and 3 Duchesses alive now. I had heard so much about the Maréchal Niel that I supposed it was perfectly hardy, and was very anxious to have one or two. Our climate is damp and foggy in the fore part of the day, and sunny and windy the latter part, but not cold. 3. I send you a small branch of a shrub for name. I received it from the *Rural New Yorker* last Spring a year ago, but the name was so stained I could not make it out. It is to me, at least, one of the most remarkable plants I ever saw. It is a shrub, to all intents and purposes, about three feet high. Last season it grew about two feet, and this Spring when it started to grow, it put out four shoots about four inches from the ground and started off like a vine; and as it was in the way of the other plants I made a trellis-frame about four feet high for it to run on; but

it was not long till it was away above that; so I spliced the frame about three feet longer, thinking that would be high enough for this season; but it is eighteen inches above the trellis now, and has a fair prospect of growing three or four feet more yet this season. It is, as I said before, a perfect shrub in all appearances, except that the vine or runners is well proportioned and handsome, with golden, variegated leaves, and about every two or three inches along the vine it puts out sometimes two and sometimes three branches from six to eight inches long, but there are no tendrils to cling with for support, but it has to be supported on a frame like a golden honeysuckle, which it resembles very much. Now what is it—a vine or a shrub—and what is its name? 4. Is there a book published giving instructions for planting all kinds of shrub and plant seeds, both for the garden and greenhouse, and their management before and after they are up? I can get information about planting seeds in the catalogues, but they do not tell anything about their management after they are up; and I find that different plants require different treatment. Some want a cool place, like the Chinese primrose, and others like a warm place, and not much water. In fact, I should like to get a book that will give instructions about general propagation, both by seeds, cuttings, and layers, and their general treatment throughout. 5. I see the *Rural New Yorker*, of August 9, page 502, speaks of a new Pelargonium sent it by John Saul, of Washington, D. C., called Madame Baltat, said to be double and pure white. Last Spring I received a Zonale Geranium from the Innisfallen Nurseries, called Madame Baltat, double, and represented to be pure white; but it is a light flesh color. Is the Madame Baltat a Geranium or a Pelargonium, or is there one of each of that name?

[1. The specimen was entirely rotten, and appeared as if it had suffered from some form of mildew.

2. The Maréchal Niel ought to be perfectly hardy in your part of California. It is a very strong grower, and will not flower freely till two or three years old. It should be grown on a trellis or pillar.

3. The little twig was entirely rotten, and nothing could be made from its mortal remains. The description, however, fits *Lonicera fragrantissima*.

4. There is no such work. The best thing to do is to send your troubles to the GARDENER'S

MONTHLY, where they will receive compassionate attention.

5. Almost all the white Zonale Geraniums turn pinkish in fading. There is no horticultural difference between a Geranium and a Pelargonium.—ED. G. M.]

AMERICAN TREES IN BOSTON.—A correspondent writes: "In regard to what you say about foreign trees, I am quite certain that less than ten per cent. of the stock planted in this vicinity is foreign. As a rule, our American trees are cheaper and better. There is a decided change in this respect within a few years."

[Of course the writer of the Boston letter had reference to the general run of trees now growing up, and not those which have been planted within the last few years, the effects of which can hardly yet be seen. It is pleasant to know that there is now this decided change.—ED. G. M.]

PURCHASING ROSES.—Mrs. E., Melrose, Mass., writes: "Will you please inform me, through the MONTHLY, as to the best time to buy young Hybrid Perpetual roses—Fall or Spring? And if not set out till Spring, will they flower at all the first year? I am, of course, in a great hurry for results—amateurs always are—particularly since I saw the magnificent display of the Massachusetts Horticultural Society's Exhibition last year."

[If strong two-year plants can be had—that is to say, plants rooted last winter and grown in the open ground all summer—such as Rose plants used to be before severe competition in low prices led to plants of but a few months old being regarded as good commercial articles. It would be well to secure them this Fall, and bury slightly with earth till Spring. If then pruned a little and planted they will make a very fine show the next year. But if "strong plants," at about ten or fifteen cents each, be understood, it will be best to wait till Spring; and even then Hybrid perpetuals do not make much show the first year, though the small Tea Roses usually do well in a few months.—ED. G. M.]

TUBEROSE SEED.—C. D. F., Gloucester, N. J., says: "Will you please let me know if single Tuberoses can be made to bear seed, and by what process?"

[The pollen of the Tuberose does not readily find its way to the stigma without artificial aid.

If you apply it the flowers will seed freely.—ED. G. M.]

TWO GOOD BEDDING TEA ROSES.—Mrs. R. B. E., Melrose, Mass., writes: "I have tried two of the newer tea roses this summer—Marie Guillot and Comtesse Riza de Pare—and find them *very much* superior to the generality of tea roses for bedding purposes. They are extremely vigorous in growth, especially the latter, and most profuse in bloom. Marie Guillot is a rich creamy white, and Comtesse Riza de Pare is a peculiar shade of salmon-rose, tinted with copper. It is full, globular in form, and one of the most satisfactory roses, both in habit and flower, that I have ever used."

MEMORIAL TREES.—S. P. B., near Wilmington, Del., writes: "If any one wishes to be borne in pleasant remembrance, let him present another with some plants—something that will live and grow. Many years since I received from Thomas Meehan, though I was but a casual acquaintance, a bundle of plants, all of which, with one exception, I believe are living, and help to adorn my pleasant home. Among them was a Japan Varnish tree (I know there is a new name for it, but do not remember it), and often when it has been in its great beauty, as it is now, I have felt I ought to write to thee and thank thee for having sent them to me. The thanks have been long coming, but there is an old saying—'better late than never.'"

[Uncertain whether this is a private letter or for publication, we give the latter the benefit of the doubt for the lesson it may bring. It was about twenty years ago the writer of this was wandering through Delaware, collecting wild plants—botanizing—when he came on a pretty country garden on the Brandywine, and stopped to admire some of the cultivated beauties. A conversation ensued with the good lady tending the flowers, and she finding out who the plant collector was, invited him to stop and take dinner with the family. A pleasant hour was spent, and the writer went on his way. The following Fall he sent a small plant of *Kolreuteria paniculata* as a slight acknowledgment of the kindness shown him. The writer of this has never been over that ground since, but it is pleasant to know, after twenty years have passed, that the little tree has kept him in the lady's remembrance; and it is a good point in favor of what has been often urged in our columns, namely, the great pleasure which the planting of memorial trees may possibly give.—ED. G. M.]

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

The great anxiety at this time will be to preserve those things that have been growing in the open ground during Summer, for, though when they were set out we had no thought of anything more than Summer decoration, we hate to let things go to destruction that have afforded us so much pleasure. The feeling is commendable, and yet it is to be kept in check or we overburden ourselves with material which becomes a tax on time and space to care for. Still there are always some to be lifted, and those who have not the advantage of professional gardeners to assist them, may find a few hints serviceable to them.

In taking up things from the ground for potting, care should be taken to have the pots well drained, with pieces of potsherds over the hole. The more rapidly water passes through the soil the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the objects of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

For potting plants the soil should be as dry as possible. So dry that it will crumble readily when pinched by the finger and thumb; and it should be pounded in about the side of the pot without mercy. When the pot is large, there will be danger of breaking the pot by the proper punching of the soil about the plant, if there is any flaw in the pot. For this, reasonably good gardeners protect large pots by a piece of wire under the rim.

After potting, the plants should be well watered and kept in the shade for a few days. If they still show signs of keeping a wilted appearance long, it may be as well to pick off a few of the leaves. Some things of not too tender a nature can be kept in cellars for Spring. The bedding

geraniums are often treated in this way. The leaves and softer parts are cut away, the whole tied in bunches, and hung up. At times the cellar is rather dry for this, and then some moss is packed in among the roots and kept a little damp.

Hanging-baskets which have been in piazzas or under trees all Summer will need to be taken to the parlors soon. Many take out and reset at this season under an impression that the soil is exhausted; but a much better way is to let them alone and sprinkle a little very well decayed manure among them.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be placed at once. Four or five-inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

COMMUNICATIONS.

TUBEROUS-ROOTED BECONIAS.

BY MRS. R. B. E., MELROSE, MASS.

I desire to recommend, through the MONTHLY, these tuberous-rooted Begonias to all lovers of nice flowers. I have grown them for the first time this season, and am altogether delighted with them. I had been interested in them before, but authorities differing so widely as to their adaptation for summer bedding purposes, as well as the high prices at which they were generally held by dealers, made me hesitate about experimenting with them. But in reading the advertisements—I always read advertisements—in the GARDENER'S MONTHLY for February, 1879, I found that Daniel Barker, of Norfolk, Va.,

would send one dozen seedling tubers for \$1.00. Here was the very chance I had been waiting for. And all for one dollar! One could afford to experiment at that price. I sent at once and received them safely by mail. The last of March I put them in a box of earth and set them on a shelf, in a common living-room. They very soon came up, and about the middle of May I transplanted them into a nicely-prepared bed in the garden. Since then they have fairly run wild in growth and flower. They are now about fifteen inches high and very bushy. They have been literally covered with bloom since they were two inches high—and such flowers! No one of them is less than an inch and a half long; some more; and wider than long when fully expanded. The colors are exquisite—crimson, carmine, salmon, pink, orange, and vermillion—and look more like wax than real live flowers. I have taken the precaution to shade them a few hours during the middle of our hottest days, by an awning of coarse cloth secured to stakes at the four corners. Perhaps they would have done equally as well without. I only know that I am satisfied—and more than satisfied—with them as they are, and consider it the best invested dollar I ever spent.

NIGHT BLOOMING CEREUS.

BY J. G. R. K., LOVETTSVILLE, VA.

Herewith I send you an article on the Night Blooming Cereus, which strikes me as a beautiful tribute to that singular flower, and which, I think, would be very appropriate in the columns of the GARDENER'S MONTHLY. The plant referred to was sold by us, and we have never been able to learn the name of the variety; and as it has produced such a sensation in Missouri, I would like to know what it is.

The Missouri Statesman, speaking of the famous Cereus Grandiflorus, or Night Blooming Cactus, says:

This species of Night Blooming Cereus is not uncommon, but the specimen recently imported from Virginia by Mrs. Gen. Conway is very unlike any we ever saw or heard of; not in the size or surpassing beauty of its flowers or its singular repugnance to light and long life, but in its lack of the Cactus channelled and jointed columnar and leafless prickly stem. Mrs. Conway's is a shrub of several trunks, four and five feet high, with thick, deep green leaves, the inexplicable and remarkable fact being that the flower is pendant from the edge of the leaves and not from

the stem. One night last week the plant bloomed, and during the fleeting hours in which it displayed its remarkable beauties, hundreds of people visited it but to wonder and admire.

A correspondent furnishes the following poetical description of it:

The sunshine of summer,
Its breezes and showers
Had decked all the landscape
With verdure and flowers;
Giving hue to the eye, did its
Brightness disclose;
From the lily's soft tint
To the blush of the rose.

The scene was resplendent,
Unrivalled its bloom—
Nor could blossoms of Eden
More sweetly perfume—
Every emulous flower did
Its beauties display,
And all nature was clad
In her richest array.

Yet one virgin blossom,
All charming and bright,
Its loveliness modestly hid
From the light.
Like a gem in a casket
'Twas closely enshrined,
Avoiding the sun
And the gaze of mankind.

But a moment 'tis destined
To flourish on earth,
Brief emblem of excellence,
Virtue and worth;
And of love, too, which
Planted by destiny's dart,
Blooms, but in seclusion;
Its shrine is the heart.

When the bright orb of day
Had retired to rest,
And the crimson-tinged cloud
Disappeared from the West,
The night-blooming plant did
Its blossoms unfold,
With the pureness of snow
And the lustre of gold.

With a taper I stole through
The gloom of the night,
And gazed on its delicate
Charms with delight.
But the chaste flower seem'd
Conscious intrusion was near,
For I found every petal
Suffus'd with a tear.

Yes, tear-drops of dew did
The blossom adorn,
And in beauty it wept
'Till the splendor of morn;
When, like loveliness drooping,
It hastily dies,
While its tears and its
Fragrance escape to the skies.

[We give the extract sent by our correspondent, poetry and all, though beyond a smoothness

of rhythm not common now-a-days in newspaper poetry, it is not of high character. If poetry is the art of putting truth in song, we are scarcely ready to subscribe to the proposition that a flower which has but a transitory existence is a fit emblem of excellence, virtue, worth, "and of love, too." However, letting these things pass, we may say that the Cactus sent is *Epiphyllum latifrons*. It makes a beautiful object when trained to a single stem, planted out in the open ground in Summer, and taken up, potted, and protected in the Fall. The odor is not equal to that of the true Night Blooming Cereus.—Ed. G. M.]

AQUATIC PLANTS.

BY HUGO MULERTT, CINCINNATI, O.

"Weed" is the term applied to plants of no use to us; but as soon as it is discovered they possess a certain merit, they cease to be weeds. *Acorus calamus*, leaves sword like, hardy; *Acorus variegata*, leaves striped with creamy white, tender; *Anacharis Canadensis*, a fine oxygenator—fine, bright green, lanceolate leaves, all under water, hardy; *Aspidistra lurida* and var., a graceful, broad-leaved plant; *Bambusa aurea* var., a graceful, variegated reed; *Brasenia peltata*, the glossy green oval leaves float on the surface of the water, and when fully grown turn scarlet, mottled with yellow—flowers purple, tender; *Callitriche verna*, submerged, when it reaches the surface of the water forms a star-shaped rosette and changes from green into a brownish red, hardy; *Calla Ethiopica*, the well-known calla lily, pot-grown; *Calla palustris*, our native calla, pot-grown; *Ceratophyllum demersum*, entirely under water, where it grows without roots; *Cyperus alternifolius*, umbrella grass, pot-grown; *Cyperus variegatus*; *Cyperus papyrus*, Egyptian paper plant, pot-grown; *Farfugium grande*, round leaves, spotted with yellow, above water; *Fontanella*, a moss-like plant, all under water; *Hippuris vulgaris*, rising above water, resembling a little pine tree; *Hydrocotyle repanda*, floating, a curious plant, the round leaves rise above water; *Iris hexagona*, a variety of the flag, flowers blue with yellow; *Iris lutea*, flowers yellow; *Lacis ceratophylla*, a very graceful submerged plant, resembling chenille floating in water; *Lemna*, entirely floating, three kinds; *Limncharis Humboldtii*, leaves floating, flowers yellow, very fine; *Lysimachia*, a vine, growing under and above water; *Myriophyllum heterophyllum*, under water entire, good oxygenator;

Myriophyllum spicatum, darker foliage than former; *Nitella flexilis*, a fine grass, entirely submerged; *Nitella viridis*, the very thin leaves are branched; *Nelumbium luteum*, a beautiful lily, flowers larger than *N. odorata*; *Nymphaea flava*, the celebrated Southern yellow water-lily, leaves small, floating, and variegated; *Nymphaea odorata*, the well-known white water-lily; *Nuphar advena*, the yellow lotus; *Pistia stratiotes*, a rosette of silvery, velvet-like leaves, floating on the water; *Potamogeton crispus*, narrow, delicate-looking curled leaves, partly floating; *Potamogeton natans*, same as former, but not curled, pot-grown; *Potamogeton pusillus*, a pretty, little, grass-like plant, all under water; *Pontederia cordata angustifolia*, flowers blue; *Pontederia cordata lancifolia*, flower blue; *Reinekia carnea*, a beautiful little grass, flowers purple; *Richardia alba*, spotted calla; *Sagittaria variabilis*, leaves arrow-shaped, flowers white; *Saxifraga*, leaves variegated, floating; *Tradescantia aquatica*, submerged; *Trapa natans*, from south of France, when the curious shaped leaves reach the surface of the water they form a floating rosette of about six inches diameter, flowers white; *Utricularia vulgaris*, a carnivorous plant, floating under water, very handsome; *Vallisneria spiralis*, a very fine oxygenator, leaves grass-like, partly floating; *Villarsia trachyspermum*, leaves heart shape and floating, under side purple; *Zannichella palustris*, a grass-like plant submerged.

STENOCARPUS CUNNINGHAMII.

BY CHAS. E. PARNELL, GARDENER TO W. D. F. MANICE, QUEENS, L. I.

In the GARDENER'S MONTHLY for December, 1877, page 360, I noticed a few remarks on *Stenocarpus Cunninghamii*. We have a specimen here about fourteen feet high that promises an abundance of bloom in the course of three or four weeks. Mr. A. J. Edmonds' remarks on the growth are correct, and I can only add, that on our plant the blossom-buds are being produced on wood three or four years old, as well as on the two-year old; and I notice a cluster on wood that must be ten or twelve years old. How long it will continue in blossom after the flowers open, I cannot tell; but I will give you full particulars hereafter if you desire them.

The season here has been very dry, and bedding and flowering plants have suffered much for want of rain. We have no apples this year, but an abundance of pears and grapes. I do not

recollect ever seeing pear trees looking so healthy and bearing so abundantly.

ABSORPTION OF MOISTURE THROUGH THE LEAVES.

BY L. H. WHITE, ZANESVILLE, OHIO.

I have in my plant-yard a branch of geranium, broken off from an old plant over two months ago. It has laid on the ground in nearly the same spot since, in a shady place. The end where it is broken off is as dry and hard as a piece of wood. It has grown and bloomed continually ever since. I often pick it up and show it to customers. If it does not receive life through foliage, where does it?

[The scientific point involved in these practical illustrations, and which has brought out the many papers we have recently received, is this: If a plant can absorb water or vapor through its tissues, why may it not absorb gases—nitrogen, for instance—and in this sense be "carnivorous?"—ED. G. M.]

EDITORIAL NOTES.

NEW COLEUS.—Some friend, whose name does not appear, sends some leaves of Seedling Coleus which are very beautiful. They are named Fantasia, Starlight, Queen of May, Zebra, Sensation, Ridgewood Gem, and Sunfish. These are very different to the crenate-leaved kinds recently raised by Bunyard in England, and belong to the fringed or cut-leaved class of which pictus and multicolor are types. In some there are four distinct colors. It is a fortunate hit in the new plant way.

RONDOLETIA ANOMALA.—This plant, which is one of the most beautiful of all Summer flowering plants for American flower gardens, Mr. N. B. Hemisley identifies as the Bouvardia strigosa of *Plantæ Hartwegiana*, or, as Mr. Hemisley now calls it, *Rondoletia strigosa*.

LANTANA, HARKETT'S PERFECTION.—We saw some plants of this growing out of doors this year, and could not help feeling that if it had been an introduction from Europe, instead of an American seedling, it would be in great request for bedding purposes. Its peculiar yellow green tint of foliage would harmonize well with many bright colors in a mosaic bed. As a greenhouse plant it is not a success. In early Spring especially, when among other plants, it

has a sort of red-spider look, which may excuse one in passing it over; but out of doors, as we saw it the past summer, it passes out of this defect and becomes a perfect gem. The whole race of Lantanas are excellent for American flower gardens, and we are surprised that they are not in more general use. The bright colored varieties are very beautiful as Spring-flowering, greenhouse, or room plants.

SCRAPS AND QUERIES.

DOUBLE ZONALE GERANIUM, MRS. CORBIN. C. N. Stewart, of Washington, Iowa, writes: "I send you a flower from my new geranium, Mrs. Corbin, grown from seed here last year, which is considered here as great a novelty as New Life. It is a good grower and a very free bloomer; color crimson; reverse of petals silvery rose, having the appearance of a double variegated rose and quilled like an aster. I send you a few individual flowers, as the tree is not fully open yet. As a patron of your paper, I see you mention new plants in each issue, and if the flowers reach you perfect, please give your opinion of them."

[The GARDENER'S MONTHLY is always glad to receive and report on the value of novelties to the best of its ability. The present geranium is a very beautiful one. It must be remembered, however, that the number of varieties now in existence is so great that however good a seedling may be, it runs the chance of being very like some one already named; and this one we fear will be too near to Le Negre to be desirable.—ED. G. M.]

TREATMENT OF AN INDIA RUBBER TREE. S. M., New York, says: "Our India Rubber tree has been put out into the yard on the border and sunk about three inches in the ground. In consequence the roots came through, and we had to cut them off to lift the tree and get it ready to take into the house. I fear it has now too few roots for the fine growth of leaves and branches made during its summer out, and may lose a good many of these now during winter. What do you recommend to prevent that calamity? Shall we, next century, have H. D.'s—Doctors of Horticulture? Of course, in that case, they will have offices, hours, and get fees."

[In taking up plants in this condition, they should be placed for a few days in a cool, shady,

quiet place, when new roots will form, or the plant learn to depend on all that are left. If the injury to the roots be very severe, it may take more than a few days to recover. If, after this the leaves have a dull or haggard look, the tops of the branches had best be shortened. This will surely mend the matter. The H. D. is a good idea; but so long as the GARDENER'S MONTHLY is willing to answer all questions at the subscription price of \$2.10 a year, we fear

the H. D. would find but little practice.—ED. G. M.]

CORNELIAN CHERRY.—"Somebody" wants to know what these berries and branch are. Says the berries were reported to be poisonous to eat, but don't know."

[The above is on the editor's table. If "Somebody" can identify himself, his berries are of the Cornelian cherry, and very good for those to eat who like them, as many do.—ED. G. M.]

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

Once on a time there was a craze on dwarf pears. Millions were raised, and all were sold. Now when a person has anything to sell it is but natural that he should see all the good points in the article he has to sell, and that he should feel he has to sell just exactly what every one wants to buy. There are many who want to make money out of fruit culture, as well as many who simply want to enjoy a fruit garden and eat of the fruits thereof; and so it was only to be expected that when a seller had a pear tree that would bear in a few years from planting, would admit of 400 trees to the acre, and bear "so many bushels to a tree, so many trees to the acre, so many dollars for a bushel, such immense profits from so many bushels," so many should rush to their culture. Then again it was natural that those who read and believed in all this and planted accordingly, should pronounce dwarf pears a humbug, when they found so little for their pains. But after all, the failure is not so much because the pear is dwarf, but because the proper knowledge was wanting wherewith to treat them. We know of many cases where dwarf pear culture is a great success, but it is usual in these cases to hear the remark that they are now standards; that the pear has thrown out its own roots, and outgrown those of the Quince. But this is no real objection. They never grow as large as an original standard would do, and they have given the owners all the advantages of dwarfs while they remain in

that condition. There are some who can make the dwarf pear profitable even as a fruit crop, but few will be able to do this who are not well skilled in practical details. For these, dwarf pears will be still attractive. As to what constitutes skill in dwarf pear culture, it is needless to state here. The readers of the GARDENER'S MONTHLY know that an immense amount of failure has come from defective teaching. Fruit culture is not the complicated and costly study some would make it. It takes knowledge and skill to find out how simple and easy a thing fruit culture is. In the pear especially is this true. It is on the whole one of the most satisfactory of fruits to handle in the American climate, not equal to the apple or grape as a commercial venture perhaps, but as an adjunct to the amateur's garden. Much injury has been done to fruit culture by the expressed dread some cultivators have of a "too rank growth," and a consequent advice not to manure. A fruit tree never suffers from too much manure, if the roots are healthy. If a tree seems to suffer after a heavy manuring, it is only that it was in a bad way before this. Of course, if one were to empty a cesspool, a cart load of fresh lime, or some other inordinate mass of food under a tree, it would suffer; but our meaning is that no amount of manure that would be found of benefit to any regular garden will be otherwise than beneficial to a fruit tree, if the roots be healthy.

Celery as it grows will require earthing up, and endive successively blanched; but the main business of the month will be preparations for

housing the root crops for the Winter. Beets are generally the first thing attended to, they being the most easily injured by frost; carrots, salsafy and parsnips following. The latter are never really good until they have been well frozen; and many leave them entirely in the ground, taking them up as wanted for use. We prefer taking them all up and packing them in sand or half-dried loam, in a shed or cellar, which can be kept just above freezing point; yet the cooler the better. If suffered to be in heaps they heat and soon rot. In the same situation endive and Cape Brocoli may be preserved to the end of the year—they are taken up, with a small quantity of earth adhering to them, and placed side by side together. Tomatoes, if dug up also, and suspended, roots upward, in such a situation, will keep good a long time; but this must be done before the least frost has touched them. It is a wise plan to sow a little more Early York Cabbage early in the month, as in fine mild Winters the September sowing grows too forward when protected. A very slight protection is better for them than any elaborate affair, the sun principally injuring them. The same remarks apply to lettuce intended to be kept over Winter for Spring use, though the sun is less destructive to them than to the cabbage.

Forcing vegetables, wherever the least command of heat can be had, is the most interesting and useful part of gardening. It is not by any means what it is often considered, an operation by which you pay a dollar for a mouthful. The asparagus, sea kale, lettuce, radish, and cauliflower can be had for months earlier than in the open ground, wherever a regular temperature of 55° can be obtained—with, of course, the proper amount of air, moisture, etc. Asparagus can be had under a greenhouse stage, though of course the tops will not be so green, nor will it be much else but indifferent under such circumstances, as it would be in full light.

Radishes require an abundance of air, and lettuce light. Cauliflowers, if kept for some months with all the light and air possible, at a temperature of 50° or 55°, may have it gradually raised to 60° or 65°, and even 70°, and thus come into use in February, when there is no vegetable more desirable.

Cucumbers, tomatoes and beans require a temperature of at least 65° to begin with. If a temperature of 70° can be maintained in the coldest weather, a few of these might be sown by the end of the month, which will produce

some very acceptable dishes about New Year's day. Rhubarb, if carefully taken up at the fall of the leaf and potted, or put into boxes, will also come forward well if put under the stage in a house of the last temperature.

THE JAPAN PERSIMMON AGAIN.

BY E. MANNING, HARRISBURG, O.

In the September number of the GARDENER'S MONTHLY, Mr. Samuel Parsons, of Flushing, N. Y., criticises my remarks on the hardness of the Japanese Persimmon. I gave my experience because you asked for information about its hardness. Mr. Parsons says the American Persimmon is a Southern tree, rarely found indigenous with us, etc. Mr. A. J. Downing, in his *Landscape Gardening*, says, page 244: "The Highlands of the Hudson, and about the same latitude on the Connecticut, is its Northern limit." I have been perfectly acquainted with groves of the native tree in two different localities in Central Ohio; and the trees, old and young, are perfectly hardy there.

I could show Mr. Parsons plants in my own grounds not over two feet high, which passed through last winter without losing a bud. If Mr. Parsons' experience is, that young trees of four to six feet cannot be left out unprotected, the native tree there and here is very different.

As I stated in my former remarks on the Japanese varieties, I planted them one year ago last Spring. Both varieties were grafted on the common stock, four inches above ground. I may now say, further, that I turned a flour barrel over each one last Fall, before cold weather set in. Last Spring I was about to order six more varieties, but first examined the ones I already had; and to my chagrin found the tops and bodies of both were killed to the junction of the graft. The native stock to the ground was uninjured. Both of the Japanese kinds had made a pretty good growth the season before.

I feel justified in my former remarks about expensive curiosities that only ended in chagrin, for I have spent several hundred dollars for trees and shrubs which proved tender, some of which I tried the third time.

BUDDING THE WILD PLUM.

BY T. T. S., ROCHESTER, N. Y.

Some years ago there was considerable demand for plum trees budded on the wild Western or Canadian plum; but nurserymen found it

very hard to get a good "take," and I imagine few are now grown. However, should any one desire to bud plums of the wild or Canadian kind, I would say that they can be worked as successfully as any variety, by budding just as the growth is ceasing, or as late as the bark will slip freely. The union is then as quick and sure as with any plum. I have often grown as solid blocks on wild plum stocks as on horse plum, by taking care to bud at a time when the plant was just entering a "rest," and hence was forming wood fast.

FORCING STRAWBERRIES.

BY JOHN PAGET, LOCHIEL GARDENS, HARRISBURG, PA.

Since the issue of the July number of the MONTHLY, I have received many letters from parties asking me to give my method of forcing strawberries. One gentleman in Connecticut complains, if I understand him aright, that from two hundred pots he has never picked more than two quarts of fruit at once. There is no mystery about my plan; it is quite an easy one; and I will give it here:

I procure and pot my young plants in three-inch pots as early in the summer as possible. As soon as they have fairly filled the pots with roots they are re-potted into six-inch pots. For soil I use well-rotted sod, with one-eighth thoroughly decayed horse-dung. They are then set out, in a good, open place, on a bed of ashes. The ashes prevent worms getting into the pots. I give them plenty of room, so that every plant may develop itself perfectly; and plenty of water—once a week giving them manure water. As soon as the plants show, by the changing color of their leaves, that growth is ceasing, they are watered less often. The plants remain out of doors until the end of November, covering them lightly with leaves if cold weather comes, to prevent the pots bursting. The plants are then taken to a cold greenhouse, where the temperature will not be above 35° to 40° at night. About the first of January they are placed on shelves close to the glass, say twelve inches only from it, where they remain for the rest of the time. They are here given a temperature of from 65° to 70° at noon, falling to 40° or 45° at night. This is kept up for from three to four weeks, when the heat is gradually advanced until ten degrees more are given.

Although others say they cannot get the *Triomphe de Gand* to set its fruit, I am using this

kind altogether for forcing. It is true, they do not of themselves set well, and when it is impracticable to open the ventilators to let the bees in to fertilize the flowers, this tedious work I have to perform by hand when the crop is large.

My peach forcing has been very successful this year. I gathered 112 dozen first-class peaches and nectarines from thirty-two small trees in fifteen-inch boxes.

SLADKAJA APPLE.

BY JAMES A. NELSON, INDIAN RUN, MERCER CO., PA.

To-day I mail you two Russian apples, called Grusscheppka sladkaja. Some few years ago I put in a lot of Russian apple grafts. This is the second year of bearing. They are all summer or autumn fruit. I don't think them very valuable or profitable fruit, except this one. It is a very handsome-looking fruit, and of fair quality; tree a medium grower; leaves of a yellow green; very productive; different from any variety I have ever seen; the limbs covered with short spurs, and on each spur an apple, so that the whole length of the limb is covered with fruit as close as they can stick on. Apple crop light here this season.

[The apple measured eleven inches round, of a clear, waxy white—much whiter than Primate, Cooper's Early, or others of that class. The flesh is almost snow white, very tender, and, though rather dry, is a pleasant sub-acid. It ought to make a good August cooking apple.—Ed. G. M.]

IMPROVED ASPARAGUS.

BY E. L., GERMANTOWN, PA.

I agree with Gen. W. H. Noble, in the MONTHLY for August, that it is possible to improve asparagus, even if the sexes are on different plants. In the animal kingdom sexes are separate, and improvements have been made and are still carried on.

Does it happen that a Giant or "Colossal" Asparagus plant is always of one sex? If it is so, the improvement must necessarily be slow. But, most surely, out of the millions of plants annually raised, extra strong plants of opposite sexes must appear, and if these are marked, and at the proper time transplanted to an isolated place where the pollen of the smaller kinds can have no effect upon the progeny, in a few years, by careful selection a stalwart race of giant asparagus would be established. In the same way breeds of poultry, cattle, etc., are founded.

[Our correspondent, as well as some others, mistakes the question. Mr. Conover never made any pretense that he used the different sexes in crossing; in fact he candidly said that his plants were raised from a package of asparagus seeds received, as any one else might, and others doubtless did, from the Agricultural Department at Washington. By good culture he raised good asparagus; and hundreds of other people have had just as good asparagus by good culture as any one ever had from seeds of Mr. Conover's plants. Indeed, the knowledge that asparagus had separate sexes did not exist when Mr. Conover or any of the supposed improvers introduced their new varieties. This was only made known within the few past years through the medium of the proceedings of the Academy of Natural Sciences of Philadelphia.

Whether a stalwart race of giant asparagus would be established or not, through the medium of separate sexes, is yet to be proved. The point in question is, that so far no such experiment has been made. The analogy between plants and animals misleads here, as it so often does in horticultural questions. If two distinct animals yield a "Grand Duke," or a "Royal Duchess," there is the end of the experiment. We cannot slice them up like potatoes, or cut eyes out of them and graft or bud, and continue and multiply them for years or for centuries. We might by selecting a large female asparagus and a large male asparagus get a large seedling asparagus, and if we were to increase the plant by division we should certainly keep that variety true; but would this slow way pay? It is just possible that the seedlings of an improved variety, raised by such a selection, might reproduce and not show any tendency to revert to the originals. But this is not usual experience. At any rate, it is just the point which has not been proved, and can only be answered when somebody tries it. In the meantime we may safely repeat what we have often said, that there has been no distinct variety of asparagus, because no one knew of the separate sexes. "All sorts" of pollen has resulted in "all sorts" of plants.—ED. G. M.]

SEX IN ASPARAGUS.

BY J. R., TIPTON, MO.

Seeing your notes on sex in asparagus, I am tempted to write a few lines in regard to the subject. Twelve years ago, among some trees and shrubs received from St. Louis, there was

found an asparagus plant, which I set in a corner of my garden. When this plant flowered and produced no seeds, I set it down as a male plant. I was not aware then that asparagus flowers bore the sexes on different plants. Valuing this plant, I dug it up and divided it, making six or seven plants, one of which I set in an old asparagus bed; but none of these six or seven plants ever bore seeds. In my old asparagus bed I have a plant differing much from the others. It grows larger and has a stem as white as if bleached. I have often been asked to raise seedlings from this plant, but knowing that perhaps but one in a hundred would be like it, I intend to take it up and divide it. It is thus more easily propagated than rhubarb. When going over my asparagus bed annually to cut off the seed stalks I am always reminded to try to make my next bed of male plants, to save myself this trouble.

A DESTRUCTIVE REMEDY.

BY A. C. L., MADISON, INDIANA.

Many years ago the "Peabody" Strawberry was introduced, creating quite an excitement in the land. It was sold by subscription. I obtained enough plants to make a small bed, but found the grubs had a wonderful liking for them. Casting about for a remedy, a fellow amateur suggested a mole as a cure. He was kind enough to obtain one for me, and I turned him loose in the patch. I had provided against his escape by digging a narrow trench about twenty inches deep and filling it up with sharp cinders, obtained from a foundry. The day following I was up early to see what this exterminator had done, and the sight that met my eyes was wonderful. The mole seemed to understand the purpose for which he was placed there. It had followed five rows, and every plant was raised up four or five inches. We went for that mole, but he made the circuit before he was caught.

EDITORIAL NOTES

PEARL MILLET.—Mr. John S. Twells finds the Pearl Millet an excellent fodder plant in Camden county, New Jersey. The stalks were seven to nine feet high, and many from the same root.

PEACHES IN NEW ENGLAND.—The *Massachusetts Ploughman* says there is every prospect of the peach being found as profitably "at

home" in the New England States as the apple or the pear.

ST. MICHAEL D'ARCHANGE PEAR.—Just as the writer of this was regaling himself on some Pratt Pears of his own growth, and wondering whether he might not recommend them as perhaps the best for this region in the first week of September, his neighbor, Major P. R. Freas, dropped in with a basket of St. Michael d'Archange, not unlike the other in general appearance; and in spite of our predilection for pears of native origin, we have to give our vote for the foreigner. Mr. F.'s fruit is from dwarf trees.

THREE GOOD EARLY GRAPES.—There is so little difference in the time of ripening of the Concord, Hartford Prolific, and Telegraph, that for amateurs there is little to choose between them. The writer made careful tests this season, in order to test the value of each, and would as soon have the Telegraph as any of them. The Hartford drops from the bunch so early as to amount to almost a defect, especially as a grape is not fully at its sweetest when merely black. The Telegraph is no better than a Concord or Hartford, when fully ripe; but a Telegraph sweetens sooner than any of these. Still there is little to choose between them, except where one is in the marketing business, when even a day in ripening is of consequence.

PROGRESSIVE DEVELOPMENT AMONG NEW FRUITS.—A correspondent of the *New Jersey Liberal Press* is troubled in his mind as to the best strawberry, and thus growleth: "I have been considerably troubled, too, by the wonderful progressiveness or changeableness of varieties. For instance, at one time 'Monarch of the West' is advertised as the very perfection of a strawberry—grows large fruit, bears well, and, in short, has all the desirable qualities. Of course I bought the Monarch of the West, and of course I paid a high price for my plants. Well, I have no serious complaint to make against this strawberry; for, while in some respects it is surpassed by other varieties, it has grown an abundance of remarkably fine fruit for me, and I am more than satisfied with it. But as soon as I have planted this variety as being the only one really worthy the attention of a man ambitious to have the very best, I read that somebody has brought out a new variety which entirely surpasses the Monarch of the West, and convinces me that I have made a great mistake, and that next year I must buy the new variety."

SCRAPS AND QUERIES.

GRAPES IN NORTH CAROLINA.—Rev. S. J. B., Charlotte, N. C., writes: "My grapes rotted very badly—rainy in June—and began to rot with the rain when a little more than half grown. This year they are entirely free from rot. June and July quite dry."

MR. CHURCHMAN'S RASPBERRIES.—In our notice of this fruit, it was stated that eight berries, in receipt at our office, made an ounce. A correspondent tells us that he saw some weighed of which four made an ounce.

A PRODUCTIVE STRAWBERRY.—Rev. Geo. S., Lexington, Ky., writes: "I may be laboring under a delusion, but think I have a remarkable strawberry story to relate. Last Spring I set some Boyden's No. 30, on ground spread with thoroughly rotted manure, pasty and cornfodder compost made up of droppings of horses, cattle, swine and poultry, decayed to a black mass, all deeply and carefully plowed in and harrowed both ways. A day or two since I gathered some perfectly ripened berries from runners, while others were rich in bloom. From original plants I gathered fruit June last. I am letting runners strike to set other beds. Ought I to get out a patent? Perhaps you can match it, or know of others who can. I do not remember anything like it in my brief strawberry experience. I might add, the Boyden plants were very fine, thrifty ones when set."

THE LACON STRAWBERRY.—E. R. M., Lacon, Ill., writes: "I enclose a photograph of the Lacon Strawberry. Please observe that the plant shown had thirteen crowns and one hundred and eighty-nine berries. The large ripe berries shown were only average size. The box introduced is the regular Michigan quart berry box, introduced to give relative size of fruit. This fruit was picked from matted rows with just the least cultivation, no high farming or filling, and no picking off berries to make these grow large; but more than half the berries marketed from the patch were as large and some a great deal larger than these in photograph."

[We can only say that the photograph looks very well; but we are getting almost tired of letters with specimens of fruit which always tell us that the fruit is from "neglected" plants, plants growing in "poor locations," growing in "poor seasons," and all sorts of poor conditions.

Why do they not send us the best they have?
—ED. G. M.]

JAPAN PERSIMMON.—C. H. S., Niles, Cal., writes: "I remember an 'editorial note' of yours, which seemed in doubt as to whether the Japan Persimmon had fruited here. It has, and in a number of places over our State. Possibly fifty trees fruited last year, and twice that many this season; but of course bore only a few specimens apiece."

FUNGUS IN APPLE ROOTS.—G., Coloma, Md., writes: "I enclose a piece of an apple root from a small seedling tree. I would like to know, through the GARDENER'S MONTHLY, something of its natural history. What is it? What is its cause, prevention, or remedy? I presume it is no new thing, but I never saw it described in print, and I have no doubt many others are alike interested."

[There are numerous species of thread-like fungoid plants that feed on the healthy roots of trees, and finally lead to disease in plants. These apple roots are infested by one of these, and the effect is to injure the foliage, and finally affect the whole plant. The exact species no one can tell in this condition. It is not material to the practical question raised by our correspondent. The only remedy we know, is to destroy such infested plants.—ED. G. M.]

PEAR BLIGHT.—F., Rochester, New York, writes: "Is not the Pear Blight a disheartening thing to deal with? Your magazine could render us no greater service than to investigate the cause, and show us how to cure it."

[This the GARDENER'S MONTHLY has long ago done. It has shown by careful microscopic examination in its earliest stages, that the disease is caused by a minute fungus which develops in the bark and penetrates inwardly, destroying the cell structure as it proceeds. The fungus is so small that the distinguished investigator, Dr. J. Gibbons Hunt, under a powerful microscope, could not distinguish the species; but this is of no consequence. This being the cause of the disease, the preventive is obvious. Any one who is in a neighborhood liable to blight, can have immunity by washing his trees annually with pure linseed oil, sulphur wash, or other things that will kill a fungoid spore without injury to the bark. Of course spores may get into a crevice where the washes cannot reach, and hence there may be some cases where, even though the trees be washed, there will be disease. The cause of the disease has been so

clearly demonstrated, and the remedy so patent, that cases of "fire blight" only proves ignorance or neglect.

Since the above was written, the writer has seen a beautiful row of Dwarf Duchesse D'Angouleme Pears, on the grounds of Mr. Hiram Sibley, at Rochester, one of which was badly stricken by fire blight, though he was told the trees were sulphur and lime-washed every year. But on personal examination of the trees, it was found that only the trunk up to the branches was washed, and this of course could have no influence on the parts not covered by the wash.—ED. G. M.]

GREEN POTATOES FOR SEED.—A Berlin, Conn., correspondent says he has been trying experiments with the ordinary class of potato sets, and with sets allowed to become quite green by exposure to the air before cutting, and finds a great gain by using the latter.

CELERY DISEASE.—H., East Hampton, Mass., writes: "I have a trouble in my vegetable kingdom that is new to me. I have five thousand celery growing finely, but they seem to be covered with insects; what I should call thrips; at least, they are like the insect of that name that troubles our hothouse grapes. Now, either from them or some other cause, the leaves have a rusty appearance. If the celery was stunted or not growing well, I could understand it better. Do the insects cause the rust? How can I destroy them without injury to the celery? Are they common on a quick growing crop out of doors? If you will answer the above or give me any light on the subject, you will confer a favor on a subscriber of the GARDENER'S MONTHLY."

[It may be the celery fly, or the celery fungus. Lime water ought to settle the question in the former case, and sulphur in the latter. Does any correspondent know better?—ED. G. M.]

BENONI AND EARLY JOE APPLES.—H. D., Galesburg, Mich., sends us the following good note, received after our last went to press, with Mr. Downing's paragraph on the same subject: "In Editorial Notes of August number, GARDENER'S MONTHLY, it is stated that Benoni Apple originated in Ontario Co., N. Y., and Early Joe in Massachusetts. Should not this be reversed? I well remember seeing what purported to be the original Early Joe tree in East Bloomfield, Ontario Co., N. Y., and many times supposed I was eating fruit from the original tree."

FORESTRY.

EDITORIAL NOTES.

LEGISLATION AND FORESTRY.—It is a common theme with newspapers and public speakers that the forests are decreasing; that the country will materially suffer, and that "something" must be done. The position we have always taken is, that bad measures or good measures, founded on bad reasoning, are ultimately injurious, and hence we are often found seemingly opposed to forestry interests, when really we are but opposed to visionary schemes and arrant nonsense. We desire to encourage forestry; but we only wish to see it on a basis of business common sense, which shall need no backward step after the advance is once made. How much our advice has been heeded, and how much has been lost by a preference for mere guess work, is continually being seen by the collapse of many pet experiments. The Iowa tree planting law is amongst the latest of these. It has not yet been repealed, but it is on the high road to this ignominious end. It was enacted that for every acre of forest trees planted \$100 should be exempted from the owner's assessment, and for each acre of fruit trees, \$500 for five years. There has been spent a nice little sum already in the payment of officers to take the census, and according to their returns nearly six millions of dollars are to be stricken from the assessed value of property in the State, and to be exempted from tax on account of "tree planting." According to this there should be 60,000 acres of forest and fruit trees set out in the State of Iowa the past year; and if so, some nurserymen must have made enormous sales, and should not necessitate the frequent advertisements of "surplus stock" at nominal rates. But the fact is no one believes there has been anything like this amount of tree planting in Iowa; and the plain English is, that somebody is robbing the State under the plea of encouraging tree planting.

It will be found, as a general rule, that whatever may be the facts in European countries, in ours very little can be done by legislation to help tree culture. Whenever it is urged, we look

for fat offices for somebody, and fat salaries for worthless men, with the slightest possible modicum of good for the purposes such legislation is ostensibly inaugurated to serve.

FIBRE MACHINERY.—There are an immense number of plants known to have useful fibre; but the trouble has been to find machinery that will prepare it profitably. The late Professor Gabb told the writer of this that some large landed proprietors in San Domingo were prepared to give a premium of \$30,000 to any one who would invent a machine that would profitably clean out the fibre of Agave Americana; and it was while experimenting with a machine of this class that the distinguished plant collector, M. Roezl, lost his arm. We therefore watch all efforts in this direction, and give the following, from the Florida *Mirror*, for what it may be worth: "The machinery lately brought by Prof. Loomis for the preparation of palmetto fibre is working satisfactorily, and the experiment is an assured success. The stalks of the scrub palmetto are used. It is said that the fibre is likely to prove useful for cordage, paper, tubs, pails, flour barrels, boats, powder kegs, and no end of other articles of general use."

THE PROFITS OF FORESTRY.—Not ten miles from the centre of the city of Philadelphia, on the York road, is a goodly-sized piece of forest land which was covered with young timber, chiefly of chestnut, and which the owner decided to have grow up as a piece of timber land. This was forty years ago. The land was then supposed to be worth about \$75 an acre. It is now believed to be worth \$150. The timber is now being cut and sold for fence posts, which bring in the rough \$18 per 100. There is a very great demand for these posts in the vicinity of this city, and it is thought the price for the posts is a very good one. The owner estimates that these posts bring him in now \$300 per acre. Deducting what has been paid for taxes, we find that if the land had not increased in value there would have been a net profit of about ten per cent. per annum at simple interest. Some little benefit has been derived from the wood for personal

uses during this long time, which will balance the waiting so long for the returns, leaving ten per cent. as the clear gain on the \$75 basis. But as the land has been steadily growing in value during forty years—from \$75 to \$150—it would

be but fair to charge interest on \$112 per acre, instead of \$75. On a calculation on this basis, the forest will yield but little over six per cent. per annum, exclusive of the net value of the land.

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

THE SELF-FERTILIZATION OF PLANTS.

BY REV. GEO. HENSLOW.

[As our readers know, much attention has been given of late years to the subject of cross-fertilization of flowers by insect and other agencies. It is understood that many plants are unable to fertilize themselves, and that others which can do so, are more easily fertilized by these outside agencies than by their own act. A difference of opinion has grown out of these facts. Mr. Darwin, Dr. Gray, and others believe that cross-fertilization is a benefit to the plant or its race, and that the arrangements for cross-fertilization were expressly designed for the accomplishment of this good end. The advocates of this view had the advantage of novelty and plausibility, and for a while the ground seemed indisputable; others following, failed to see the good results from cross-fertilization, found a great deal more self-fertilization among flowers than the other party was at one time prepared to grant, and discovered a great many risks and disadvantages to plants dependent on insect or other aid. Amongst these is the Rev. Geo. Henslow, who about a year ago published an elaborate paper on this logical question. This paper induced a lengthy review in *Silliman's Journal*, from the pen of Dr. Gray, which has been copied into the *Botanical Gazette*, and probably other papers in this country. Prof. Henslow sent the following reply to *Silliman's Journal*, which the editor, Dr. Gray, though under no obligation to do so, kindly promised to insert. Subsequently an abstract of Dr. Gray's criticism appeared in the *London Gardener's Chronicle*, and Prof. Henslow justly apprehending that the reply would be better understood if

immediately following the criticism, sent a copy of the reply, which was published in the *Gardener's Chronicle*, the following week. Dr. Gray now declines to publish in *Silliman's Journal* Prof. Henslow's reply.

If the *Gardener's Chronicle* were read by the same persons in this country who read *Silliman's Journal*, *Botanical Gazette*, and so forth, it would, of course, be a waste of space to reprint in *Silliman's Journal*. Dr. Masters did not think they were the same, or he would not have reproduced Dr. Gray's remarks in the *Gardener's Chronicle*; nor do we think so, and therefore, as an act of justice to a distinguished foreign scientist, we give space for the reply in the country where the criticism was made.—ED. G. M.]

"Although the Professor at first calls my essay 'unconvincing,' yet at the close of his remarks he appears to be convinced on one, and that, too, the most important point: 'Without acceding to his general proposition, we are much disposed to agree with the author in this essay as respects some of them (i. e., weeds), that aptitude for self-fertilization may have given them the advantage which has determined their wide dispersion.' This, however, at once admits that by their dispersion and by the maintaining their existence, self-fertilizing plants have proved themselves to be the best fitted to survive in the natural struggle for life. This is the sum and substance of my argument, and it necessarily involves the acceptance of the converse proposition, that plants dependent upon insects are least fitted to be dispersed and to survive. I admit to the full that all conspicuous flowers are more or less adapted to insect agency, but I demur to the expression that such flowers are 'benefited' by intercrossing. Such a term assumes self-fertilization to be the standard for comparison. But as

their normal condition requires insects and crossing for full physiological effects, the results of intercrossing should be taken as the standard. Then it would be correct to say that such plants are not benefited by self-fertilization, for their standard is often lowered, as Darwin has shown abundantly. On the other hand, with plants habitually self-fertilized, their standard is the result of self-fertilization. Now these, as Darwin has shown with *Canna*, garden pea, some cleistogamous flowers, etc., are just as indifferent to crossing, for their standard is similarly lowered by the process. But further, while the latter are not benefited by crossing, the former may be actually benefited by self-fertilization, as Darwin has proved with *Hero*, white *Mimulus*, *Dianthus*, etc., which, having re-acquired the power of self-fertilization, at once pass under the category of self-fertilizing flowers. Hence, *ceteris paribus*, the balance must be in favor of self-fertilization. This is the logical inference which has to be refuted, if it be possible to do so. But we may proceed further. Darwin has shown that certain plants which are adapted to insects only acquire their fullest fertility when crossed with distinct stocks. Hence the ordinary crossing of plants growing in the same soil is not perfect; so that the real alternative lies between a constant intercrossing between stocks of widely sundered localities, or else self-fertilization. The former in nature is out of the question, hence the latter is preferable, as their propagative powers are enormous, and far beyond what is absolutely required to maintain their existence. Professor Gray, in speaking of the benefits of crossing, says: 'We do not doubt that sexual reproduction contributes something to the well-being of the species,' (apart from that to the individual?) 'besides facilitating its dispersion;' 'an occasional cross suffices to secure the benefit of intercrossing, whatever that may be.' I have more than once protested against the use of vague expressions, such as the words I have italicised; for they are misleading and valueless in argument. Unless it be distinctly stated what the benefit is supposed to be, and wherein I may have denied such to accrue to the plant, I can only refuse to reply. In my paper I consider one 'end' of plant life as alone legitimately recognizable, namely, propagation. All other so-called 'benefits' I maintain have not been proved to be such at all, and are merely subjective impressions; while all botanists admit that self-fertilization is by far the best method for

securing rapid and abundant propagation. The plants alluded to, excepting *Gaura parviflora*, were upon the authority of others. That this species should 'open its flowers freely and bear rose-colored petals' in America, entirely confirms my statement, that flowers adapted to insects in one country or in one season may be self-fertilizing elsewhere, and *vice versa*, and that inconspicuous self-fertilizing forms (species) are simply reduced from their conspicuous allies. Though the many flowers of *Gaura* which I examined at Kew were cleistogamous, it is just what I expected to hear, that they open in their native country. Professor A. Gray asks me if I ever asked myself the question, 'Why sexes are separate in animals?' I reply by taking the liberty of an American, in asking him if he ever thought why they are retained in one and the same animal in many cases? If my paper was 'unconvincing' to the Professor, I fear, though I thank him much for it, I cannot say otherwise for his kindly criticism."

ABNORMAL FLOWERS.

BY REDWOOD CALEHOPPER, WILMINGTON, DEL.

I wish to call the attention of your botanical readers to the two following extracts. The first, below, is from a pamphlet giving a short account of the history and present condition of Cyprus, the author being R. Hamilton Lang, for a number of years British consul on the island:

"They bartered the gold and the luxurious manufactures of the East for the minerals and the produce of the island, which they carried back to the mother country or transported to the far-off lands visited by their ships. As the bee, flying from pollen to pollen, hybridizes as it goes, the Phœnician trader scattered the seeds of an advanced civilization, and a higher material prosperity wherever he touched and wherever the grateful advantages of his commerce were felt."

The second extract is from a recent number of the *Atlanta Daily Constitution*:

"The editor of the *Quitman Reporter* has seen a rose which is something out of the usual order of nature. The stem had first a white rose in full bloom, then about an inch above was a red rose with a small leaf, through which the stem extended and bore on its end a rose bud which had not yet fully developed."

My own attention was not long since called to

a monstrosity seen in a garden in the little village of Micanopy, East Florida. Travelers by stage from Ocala to Gainesville usually stop at this odd-named village to dine. Seldom, however, is a stop made over night, but the place struck me as being so very picturesque that I thought I would deviate from the usual rule and remain until the stage came up again from Ocala. The next day, as I was sitting in the hotel porch here, I noticed a flower conspicuous, though distant, because white, on a shrub in the corner of the front yard. The shrub proved to be the ordinary mock-orange, *Philadelphus inodorus*, and the flower the only open one upon it. On examining this flower closely, I noticed that beneath each white petal there was a perfectly formed bud, each bud having sufficient stem to project it a quarter of an inch beyond the supporting flower. Had the flower remained unplucked a few days longer, the buds would doubtless have opened and would have exhibited rather a striking example of a compound flower.

THE FLORA OF THE STATE OF TEXAS.

TRANSLATED FOR THE GARDENER'S MONTHLY FROM THE "ANZIGER DES WESTENS."

NO. II.

In the fir forests, the dogwood, which is also quite frequent in Arkansas, forms the principal part of the under-brush. It is from eight to ten feet high, and in the month of March bears a great quantity of large snow-white blossoms. Another small tree is the *Ungnadia speciosa*, which in Spring is covered with thousands of pale lilac butterfly blossoms, growing in great clusters. There is also a beautiful evergreen shrub with shining leaves, the *Ilex cassine*. In Spring time these fir forests present a beautiful sight mingled, as they are at that time, with the fresh green of the under-brush, which is covered with myriads of snow-white and lilac tinted blossoms.

The oak of the eastern part of the State is *Quercus cinerea*. Near Marshall and in the limestone and freestone counties it forms small woods that run into the evergreen forests. In the extreme north of the State the so-called cross-timbers form woods by themselves. These are the narrow belts, often not a quarter of a mile wide, which run for fifty and more miles right across the dreary prairie, and consist of these oaks and osage orange ("bois d'arc").

In the east the Bermuda grass prevails; on the coast thrives the salt grass in bunches. Around Galveston grows a low cedar, the Salt Cedar, probably imported, as it is not found anywhere else. It is proof against all storms, and flourishes on the sand bars. On this account it is planted on the seashore, and gradually catches and retains the soil washed in by the sea, thus forming an embankment on the shore.

In floral splendor eastern Texas cannot compare with the rest of the State. However, it is blessed with many very pretty flowers, lilies of various colors, verbenas, etc. Peculiar to the east are *Ruellia tuberosa*, *Verbena aubletia* and *bipinnatifida*, *Linaria Texana*, *Cynthia dandelion*, *Lupinus subcarnosus*. Oranges, lemons, Oleander, and other representatives of the vegetable kingdom have been introduced, but now spring up self-sown. There is no trace of cacti or palms in eastern Texas, and altogether we feel here more as though we were rather in a Northern than in a Southern State.

The central zone of Texan vegetation may be divided into two parts, the region of Oaks and that of Mesquite trees. The first extends from the Trinity to the Colorado river, the second from the Colorado to the Medina. In both regions a mixture of the two trees may be found; in the first, however, Oaks prevail; in the second, Mesquite trees. Vast forests of either tree cover hill and dale for miles and miles. Only along the river bottoms a richer flora appears, where we no longer meet with the all-prevailing cinerea oak and Mesquite tree, for here appears *Quercus obtusiloba*, post oak, used principally for posts and fences, thirty to forty feet high, running up a very straight trunk, always growing in groups, never alone, and never amongst other trees. It thrives best in sandy soil, and is found all over, on the prairie, on the upland, and also running up high into the mountains, as for instance, near the German settlement of Fredericksburg, where thousands of square miles are covered by it. Next to this in the central zone the live oak, *Quercus virens*, is of importance. It would not be recognized as an oak by the casual observer, so little does it look like one, but the fruit indicates the tree. The live oak is one of the finest trees of Texas, and in moist places attains a truly majestic height. This imposing appearance is increased by long gray moss drooping from every branch and twig. Although this is called moss, it really is not, but belongs to the same genus as the pineapple.

The botanical name is *Tillandsia usneoides*. The long thread-like stems of ashen hue bear narrow leaves an inch long, and of the same color, placed opposite each other. The blossoms start from the angles of the leaves, and are also grey. A single live oak is often covered with a thousand pounds of this epiphyte. The oak leaves remain green during the whole Winter, and fall off in April to make room for the new ones. The trunk generally attains great thickness, and the branches extend from it to a distance of thirty to forty feet. The dense foliage affords abundant shade. The live oaks grow throughout central Texas, not as woods by themselves, but rather in groups in the open country, with dense under-brush, and go as far as the Gulf. As for instance, on the Caney river, where with other trees they stand in forests. Sometimes a solitary and fully developed oak is met with on the prairie. The region of live oaks extends far into the mountains. They are said to reach the age of upwards of a thousand years. Their wood is as firm as iron, and therefore much in demand for railroad sleepers.

Another oak, the red oak, *Quercus rubra*, appears in vast quantities and mostly in the form of woods. An insignificant looking tree with dark green foliage; the trunk so little straight and so much branched that its wood is only good for fire wood; the bark is good for tanning. It prefers to grow on the mountains, and is found to cover their very tops. *Quercus coccinea* is similar to the red oak, and appears among the red oak woods. Its bark is also good for tanning.

Quercus cinerea, of eastern Texas, mentioned above, is still met with in groups west of the Brazos, and is the first of all oaks to bloom in the Spring.

Generally on the high ridges of the mountains, and rarely in the valleys, we find the white oak, *Quercus alba*, with trunk and branches as white as the birch, of snowy whiteness in fact, and its smooth bark peeling off in rings. Light green foliage, leaf large and deeply dented, and good sized acorn. Its wood is white and beautiful, and much liked for furniture. This oak does not grow higher than twenty feet here, is of sparse foliage, and never makes a strong tree.

A remarkable kind of oak is *Q. macrocarpa*, found only in the valley of San Saba, growing as high as sixty feet, and bearing an acorn as large as a pigeon's egg. Its wood is in good demand.

Finally we must mention *Q. parva*, a dwarf oak, seldom higher than five feet, with small leathery evergreen leaves with thorny edges, and a very small acorn, bearing abundantly; it likes to grow amongst the live oaks, and forms in the higher valleys extensive brush-wood.

Next to the Oak, the Mesquite, *Algorobia glandulosa*, is the principal and most characteristic tree of central Texas. East of the Colorado it appears but rarely, and in the shape of brush-wood only; west of the Colorado its forests are immense, reaching as far as the Guadalupe, and between the Guadalupe and the Medina, hill, dale and mountain are covered by the Mesquite, and almost no other tree meets the eye. The Mesquite hardly ever exceeds two feet in thickness, and grows about thirty feet high, has a splendid, somewhat tropical look, leaves of a light green color, light and drooping, blossoms in yellow clusters, and of very pleasant odor. Its habit is very similar to that of a weeping willow. The fruit is a pod of five to seven inches in length, containing from ten to twenty seeds. The outer skin of the pod is of the nature of paper, the pod itself is filled with pulp, which envelopes the bean-like seeds. Hence its value for fodder for cattle. The pods are eaten by horses and cows off the tree, and quantities of them are collected and saved for Winter. In Jamaica and in Australia the English government has, for the sake of this fodder, introduced the Mesquite tree, and it is said with very good success. The trunk exudes a rosin which is not inferior to gum arabic, and is collected and exported. The wood is of two colors, the inner part is reddish-brown; the outer, nearest the bark, light yellow, and makes nice ornaments for furniture, and is worked into boxes, etc., but is mostly used as fuel, burning slowly and giving out a great deal of heat.

In the mountains the Virginia cedar, *Juniperus Virginiana*, forms vast forests. It is also found in the valleys here and there on rich soil, but of entirely different habit, rising up straight and slender with few branches, whilst on the heights it seldom exceeds twenty feet and has a broad top. On account of its durability the wood is much used for building, and principally for fences.

Besides the trees enumerated, there is the hackberry and the black walnut in woods, or mixed with other trees, and here and there as solitary trees.

HABITS OF FULLER'S ROSE BEETLE.

BY PROF. C. V. RILEY.

As the knowledge of the destructive beetle, *Aramigus Fulleri*, was early made known through the medium of the GARDENER'S MONTHLY, we are anxious to keep a full record of its history in our pages, and give therefore the following from the *Scientific American*:

"Within the last five or six years frequent complaints have been made of the failure of tea roses, the cultivation of which has become a very important and lucrative branch of flower culture. This failure has recently been ascertained to be due to the larva of a little gray snout beetle, belonging to the family Otorhynchidæ, and shown in its different stages in the accompanying figure.

"Mr. Peter Henderson, of Jersey City Heights, N. J., has himself suffered very much from the work of this insect, and I have had considerable correspondence with him during the Winter upon the subject. The following quotation is from one of my letters replying to his inquiries:

"The first knowledge which I obtained of this insect was through our mutual friend, Mr. A. S. Fuller, who sent me specimens in 1875, the species being then undescribed. In 1876 it was described under the name of *Aramigus Fulleri*, by Dr. G. H. Horn, in the proceedings of the American Philosophical Society, vol. xv., page 94. Mr. Fuller had found it in greenhouses, and somewhat injurious to camellias. It seems to be quite widespread, occurring from the Atlantic at least as far West as Montana, and its habit of injuriously affecting roses and other greenhouse plants must be looked upon as a comparatively recent acquirement. Such instances of newly formed habits are constantly presenting themselves to me in my studies of insects. The beetle seems to be purely American, and the genus *Aramigus* was, in fact, erected for it and another species (*Aramigus tessellatus*) of about the same size, but of a silvery white color, with faint green hue, which I have found in Kansas upon the well known 'resin weed.' The beetle belongs to the same family and is pretty closely allied to a well known European beetle (*Otorhynchus sulcatus*, Fabr.), which is larger and darker in color, and is also very injurious to greenhouse plants, as well as to some grown out of doors. This species also occurs in this country, as I have specimens that were taken in Massachusetts. It is the habit of all these beetles, so far as their habits are

known, to work in the roots of plants while in the larva state, just as your *Aramigus* does. The eggs are doubtless laid upon the roots by the female beetle, which burrows into the ground for this purpose. Upon inquiry I find that what is evidently this same beetle has been more or less injurious to roses in and about Washington, and that Mr. A. Jardin was obliged to give up the growth of tea roses here, a number of years ago, on account of its injuries.

"In Bennet's excellent essay on 'Rose Growing in Winter,' he fails to mention this insect among the 'causes of failure.' Mr. Henderson does not hesitate, in a recent number of the GARDENER'S MONTHLY, after a thorough investigation of the subject, and a correspondence with some of the best rose growers in six different States of the Union, to express his belief that in a large majority of cases failure is due to this insect alone.

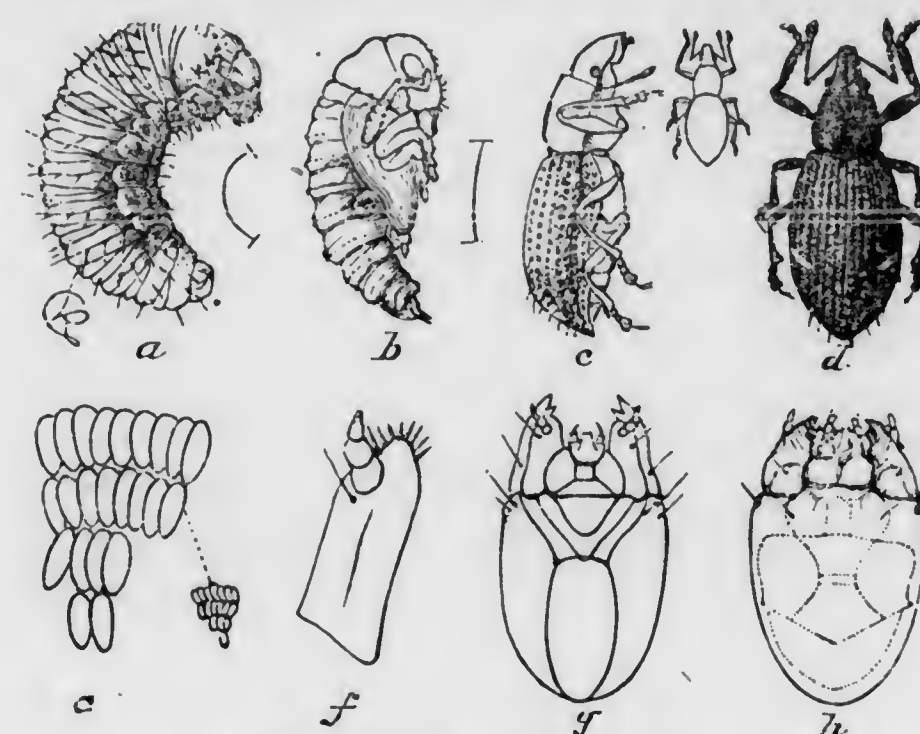
"The only remedy that has been employed hitherto is to persistently catch and destroy the perfect insects, and the experience of Mr. John May, who has for five years been fighting it in this way at Madison, N. J., is to the effect that no substance will destroy the insect in its larva state without at the same time injuring the plant.

"A study of the habits of this insect, which I have been able to make through the courtesy of Mr. Henderson, who sent me abundant material, enables me to add to his excellent account some facts that are both interesting and of a practical value. The most serious injury is done by the larvæ, which feed principally upon the more tender rootlets, and thus attack the plant in its most essential parts. This work being underground, is so insidious as to easily account for the fact that it has been generally overlooked.

"I have had a quite healthy rose bush totally destroyed in three weeks' time by about three dozen of the larvæ, which were placed in the pot containing it. The symptoms that are manifest above ground when the grub is at work are partial stagnation of growth, weak pale shoots, and generally barren flower buds; and when these symptoms manifest themselves strongly a number of the grubs will be found if the plant be dug up and shaken. The parent beetles, like most other snout beetles, live for a considerable time, as I have kept them in confinement for nearly three months. They are nocturnal in habit, being quite active and feeding only after dusk. They shun the light during the daytime, and hide under the leaves or cling tightly to the

branches or in some fork near the base of the plant, always in such position as not easily to be observed. Upon disturbance they drop to the ground, draw up their legs, and 'play 'possum,' remaining motionless for some time, and looking very much like a small lump of dry earth, the color adding greatly to the resemblance.

"This habit of simulating death upon disturbance is common to many other insects of this family. They feed upon the leaves, but do more injury by severing them than by the amount of foliage consumed. The eggs are laid in flattened batches, consisting of several contiguous rows, and each batch containing from ten to sixty. The individual egg is smooth, yellow, ovoid, and about one mm. in length. The



ARAMIGUS FULLERI.

a, larva; b, pupa; c, beetle, side view; d, same, dorsal view, the outline between showing natural size; e, eggs, enlarged and natural size; f, left maxilla of larva, with palpus; g, underside of head; h, upper side of same, enlarged (after Riley.)

female shows a confirmed habit of secreting her eggs, which are thrust between the loose bark and the stem, especially at the base just above the ground. In the twenty odd batches which I have examined they have invariably been thrust either between the loose bark and as above described, or into any other crevice that could be found; as, for instance, that formed by some paper around the edge of the bell glass in which some of my experiments were made. More rarely they are laid between the earth and the main stem just at the surface of the ground. The eggs are so firmly glued together and to the place of deposit that they are not easily seen, and are with extreme difficulty detached. It is for this reason that they have escaped the notice of rose culturists.

"These eggs require about a month to hatch, and the new born larva, which is of a pale yellowish color, with light brown mouth parts, is quite active, and immediately burrows into the

ground, and acquires, very soon after, a bluish hue. Just how long this larva requires to attain full growth, I have not been able to ascertain, but, in all probability, it remains at least one month, and probably several more, in the ground, where the pupa state is finally assumed.

"As the injury of this insect has been mostly to roses under glass, there will be found no great regularity in the periods of its transformation under such circumstances. In point of fact it is found in all stages during the Winter and early Spring months. Yet that, in a more general way, there are cycles of development, is proved by the fact that during a visit to Mr. Henderson, which I made last May, neither beetles nor eggs were to be found, though egg shells under the loose bark at the base of the plants were common.

"While the destruction of the parent beetles, when persistently followed up, is an excellent preventive of the injuries of the larva, and strongly to be recommended, yet when roses are extensively grown, some beetles are sure to escape detection. It is evident from the facts here set forth in relation to the eggs, that we have still another and more effectual preventive measure within our reach, namely, the destruction of the eggs before they hatch. For this purpose I would recommend the tying of a few thicknesses of tape or of narrow pieces of rag, or even stiff paper, around the butt of the plant, the bandages to be examined every three weeks and detached and burned if eggs are found in them. Where the number of plants is large, this destruction of the eggs might be expedited by the employment of traps, consisting of small stakes, around which such layers of cloth or paper are tied. These should be thrust into the ground near the main stem of the plant, and can be collected once every three weeks, thrown into a tub of hot water, subsequently dried, and used again without untying the bandages. Or, again, the materials always at hand in a florist's establishment may be employed, for I doubt not but that a few folds of oil paper placed in a slit made in an ordinary wooden label, and this stuck into the ground at the base of each plant, would form an excellent lure to the female in ovipositing."

EDITORIAL NOTES.

A CENSUS OF CAMBRIDGE BOTANICAL GARDEN.—An enumeration has recently been made

of the plants in the Cambridge Botanical Garden, by Mr. William Falconer, the curator, with the following results: 1,519 genera, all told; 5,901 species, all told; hardy, 3,641; tender, 2,260. Among these are 247 species of Orchids; 387 species of Ferns; 583 Cacti and other succulent plants; 42 Selaginellas; 36 Bromeliads; 46 Palms; and 430 hardy trees and shrubs, together with 112 half hardy ones, as *Ancuba*, *Cupressus* and *Hollies*, and exceptionally small ones, as *Erica*, *Arctostaphylus* and the like.

PICEA PUNGENS.—Dr. Englemann decides what has been known as *Abies Menziesii* of Colorado, and the *Abies Menziesii* of the Pacific coast to be two distinct species, and has named the Colorado plant *Picea pungens*. It is to be regretted that this name has been chosen, as on account of the confusion of generic names that exists among the coniferæ, it is like making

two of one kind, as we already have a *Pinus pungens*. It may be as well to repeat what has been before noted in this magazine, that the plants known as *Abies* under botanical rules are *Picea*, and that those known as *Picea* are properly *Abies*. The transposition of these names, begun in error, has been so widely circulated that even botanists have held it hopeless to attempt correction, and have mostly yielded to the wrong. Dr. Englemann believes in always sticking to the right, regardless of success, and this is why he uses *Picea* in speaking of this spruce.

THE OSTRICH FERN.—This rare fern, *Struthiopteris Germanica*, is said by the newspapers to have been found near Quakertown, Bucks County, Pa., by Professor Porter. This is much further south than it has ever been discovered before.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 5.

BY JACQUES.

The writer has been asked to define the difference in value of a study or love for botany and horticulture, and the study of music. The first idea is, that botany and horticulture contribute vastly to observation and conversation. Who talks music, and who, on a long journey, would contribute most to the pleasure of a party—the horticulturist and botanist (or say geologist, also) or the performer who had wasted half a young life in practicing on the piano? Surely the one who understood the properties of plants and the beauty and variety of flowers. It becomes a question, the asking of which should be a serious consideration,—Shall ladies be taught botany and horticulture in colleges, or shall they be crammed with metaphysics? It is useless to assert that one must have a natural turn for flowers in order to drink of the pleasures of the garden and greenhouse—else why insist on music for those who naturally care nothing for it?

And here one is led to observe that many a woman, when she goes into a region of flowering plants, shows her ignorance at once by trying to smell a fuchsia, a camellia, or a dahlia, and many well known plants that are scentless. We hope the time is coming when horticulture will be a recognized subject in colleges and schools. Till this is the case, exhibitions will not be prosperous or profitable. The masses must be taught. Carlyle ever condemned his father for not teaching him botany and astronomy, so that he could find friends and conversation wherever he went. The Duke of Wellington was asked by a lady to explain how the battle of Waterloo was won. He replied: "We pounded, and they pounded, but we pounded the hardest." So it will always be—the heaviest pounders will win the day in science and be successful.

J. Veitch & Son's Catalogue of New Plants for 1879, (London), is worthy of note. Two new pitcher plants—*Nepenthes Courtii* and *N. Stewardii*—as figured, look very tempting and desirable, as do many other figured plants, including

"*Begonia*, Queen of the Whites," and "*Monarch*." Orchids are a specialty.

Trees are known to attract lightning, and the leaf is a lightning conductor. Having notched edges, each of these points is powerful to attract the electric fluid from the air, and, through the stem, convey it silently to the ground. A single blade of grass is said to be three times as powerful to attract electricity as a fine cambric needle, and a twig covered with leaves is more efficient than the best constructed "patent point." Trees are natural lightning rods—more efficient than all the artificial ones that have ever been invented.

Bulbs.—A full catalogue of the growers of Dutch bulbs is a curious study. The quantities and varieties are enormous, while the prices vary with the beauty or novelty. Messrs. Krelage & Co. of Haarlem have taken 120 prizes for hyacinths, and many hundreds for tulips. The complete list of hyacinths embraces 2200 varieties. One is puzzled by the variety what to order. In tulips, the old *Duc Van Tholl* holds its own, and is from nine shillings the hundred to four shillings. The crocus varies from twelve and sixpence to twenty shillings the thousand. A list of Autumnal crocuses is much dearer. Lilies, as a rule, are costly. Yuccas are increasing in variety; and squills, of which we should be glad to see more planted, are plentiful.

Cranberries.—Much skill and money have been expended on the cranberry. Will some one inform the public what is the southern limit of the culture of this valuable fruit. Like the cotton belt, it is said to have its limit. Cotton will not succeed beyond a given latitude North, and the cranberry no doubt has a similar line for success Southward. A late eminent medical practitioner spent much time and money on a plantation intended to extend to one hundred acres. He left special directions for officers, and what should be done with the profits. When these arrived at \$500,000 per annum, etc., etc. But it is now said that the farm is just south of the cranberry line, in Southern New Jersey. Where is that limit?

Great injury was done to the evergreens last winter. Even the Siberian *Arbor Vitæ* succumbed utterly. Who can explain the cause or causes? Don't all speak at once.

The sale of Lady Nevill's plants at Dangstein, England, was remarkable in many respects, showing, as it did, the extent to which private

growers give attention. With one or two exceptions only (including Kew Gardens), it was the largest and most varied in England. Among its treasures were a thousand orchids, more than a thousand stove ferns, and about two hundred of the carnivorous plants, including fine specimens of *Darlingtonia Californica*. There were also masses of the more rare and beautiful filmy ferns. The sale lasted five days. If any of our readers possesses a priced catalogue, the editor would much enjoy a sight of it.

The Poison Vine—*Rhus toxicodendron*.—It is too much the custom, and it is attended with sad results, to leave fences to the mercy of this vine. A friend attended an archery meeting where the targets were placed each at the bases of trees to which large poison vines were clinging, and he wondered if the ladies liked it. At a shooting park near one of our cities of the first class a shooting club was lately established, and the fences were covered with this terrible enemy to the human skin. Many school girls climbed the fence to pick wild flowers, and some twenty were injured by the poison vines. Will parents and farmers take warning.

The Black Cat and Pear Tree.—The cat has lately been introduced as a frightener of birds. Let me tell a story, by request, of a useful member of society who had quite a reputation for raising remarkably good butter pears. Mr. B. was a master carpenter of Philadelphia, and he had a barren pear tree in his small garden on Ninth street. One morning, as he was standing with axe in hand about to cut down the useless incumbrance, the baker appeared with the morning's bread. "What, Mr. B.," exclaimed the mixer of dough, "are you about to do? Cut down an old pear tree? Take my advice, and bury a black cat directly under it. My word for it, you will have no cause to regret it." Mr. B. took the hint, and buried a very black cat under the centre, and ever afterwards he took the premium for the best butter pears, under the Presidency of the ever-to-be-remembered Caleb Cope. One day a good dinner brought Mr. B. to the horticultural dinner table. After a little champagne was "paraded," our butter-pear man told the above story. The philosophy of it no doubt was, that he cut the tap roots.

Insect Gall Nuts are held to be "excrescences," a diseased condition of vegetable tissue. The roots of Swedish turnips are frequently covered with hundreds of spherical warts, which

are regarded as resulting from a fungus, creating nodules, which are the same as those within the bark of the hazel, beech, and other trees. Let dissection be made of one of the weevil galls on the bulb of the turnip, and the second or third slice will show the outer foliations to be exactly similar to those of the root buds. When the centre has been reached the maggot will be found. All insect galls are in reality leaf-buds, or fruit-buds, not mere excrescences. The vascular lines which would form leaves can easily be followed up in the structure of the oak-leaf galls; and in cases where the egg has been deposited in the tissue of a young branch, the cap of the gall is sometimes surmounted by a leaf two or three inches long.

WHAT MR. WIER HAS NOT DONE.

BY EUGENE GLEN, ROCHESTER, N. Y.

In your September number, under the head of "Plant Patents," you strongly commend the good sense of Mr. D. B. Wier, of Lacon, Ill., in that "instead of writing long articles on what *might* be done," he has proceeded to procure trademarks or copyrights on the names adopted by him to indicate certain seedling varieties of cherries. As I am one of the persons who have written several long articles on what *might* be done, I have taken pains to ascertain what Mr. Wier has *not* done.

Mr. Wier sets out, in a sort of patent medicine pamphlet issued by him, that he has made a "new departure;" that he has, under the copyright laws of the United States, secured an exclusive property in the names, numbers, and descriptions adopted by him in connection with the cherries referred to; and amidst a flourish of trumpets and peculiar use of rhetoric, which of themselves cast a strong suspicion on his good faith, he offers to receive bids for territorial assignments of his "rights."

The copyright laws of the United States are all embodied in two or three statutes, in which their scope is closely defined. If you will refer to them, you will see that there is no provision in them under which Mr. Wier could have possibly secured the rights he claims. He could have copyrighted his pamphlet, but, as you and every editor who has occasion to quote from copyrighted books understands, a copyright of a book or pamphlet is not infringed until such copious extracts from it are embodied in a new book or pamphlet published that the public are, *by reason of the extracts*, led to buy the new book

or pamphlet, or led to believe that the latter are identical with the original.

However, in order that I might not be mistaken as to Mr. Wier's exact position, I cut from his pamphlet a paragraph, in which his claims are formally set forth, and enclosed it to the Librarian of Congress, who is by law charged with registering all copyrights "save for labels to be placed on articles of *manufacture*." I asked him to point out to me under what provisions of the copyright laws, if any, Mr. Wier could secure such rights. He replied, under date of September 8th, by saying, "Mr. D. B. Wier has made no entry of copyright in this office."

As Mr. Wier remarks, on page 11 of his pamphlet, "they (the horticulturists of the West) know I was always 'up to tricks,'" I commend him to the tender mercies of yourself and the public.

EDITORIAL NOTES.

EDITORIAL TRAVELING NOTES.—A brief visit to the Bussey Institute, with which the Arnold Arboretum is connected, gave me great pleasure. The gardener in charge is Mr. Jackson Dawson, whom I found to be a lithe, active, middle-sized man, but apparently very much on the younger side of middle age, and whose whole heart and soul seem bent on the successful exercise of his professional duties. It is rare to find a man who knows all about everything he handles; who is alive to everything that may add to his knowledge, and desirous to make his knowledge serve the purposes of those who employ him, and at the same time give pleasure to himself. This is just the person I take Mr. Dawson to be, and I could not help congratulating the Institution on its good fortune in having such a one. Understanding his business well, almost everything committed to his care is a success; and this is encouraging to those who send things there.

Among the instructors in Horticulture and the kindred branches here, is Mr. Watson, son of the well known nurseryman of Plymouth, Mass., whom I did not have the good fortune to meet, but of whose success as a teacher I was pleased to hear of from several quarters.

My chief point here was to see the grounds of what is to be in future the great Arnold Arboretum, which has hitherto been under the eye of Prof. Sargent, of Cambridge, and who is to have

henceforth the Professorship of Arboriculture here to occupy his sole attention. The collection of hardy trees and shrubs for the future arboretum has already been going on for a few years past, and an immense number have been gathered together, leaving very few desiderata able to endure Boston winters. These are arranged for the present in what might be called rather wide nursery rows, each having room enough for four or five years growth.

The grounds for the future arboretum have been left by will for the purpose, but if a committee had been appointed by some learned body to select a site, it is doubtful whether one could be found better suited to the purpose. There is level land, and again land so steep that to my certain knowledge it took 210 lbs of human flesh and bones an "awful" while to ascend it. There are rocks and hills and streams, open places and deep shaded woods, grand old trees already there, and vigorous young saplings. Only that my cup is already full, I could envy Professor Sargent the sweet draught of pleasure that in his Professorship here lies before him. In some hands I should fear the great natural beauties might be spoiled by some fancied demands of science. The water lily and the tulip tree, the swamp tree and the tree from the high and exposed rocky hill,—all would have to be brought into close association, for behold, are they not found so on some herbarium shelves! But I hope that here they will be put where they will flourish best, and where they will look best; where they will add to the beauty already here, and to the pleasure of thousands in that beauty; and that scientific arrangement will be left to the scientific works which, at any rate, the student must study, merely numbering and mapping all, that with guide book in hand, the student may readily find the thing he wants.

Professor Sargent's beautiful grounds come next in order. These are at Brookline, about four miles from the heart of Boston. It is difficult to realize this fact while walking over the nicely kept lawns or sitting under the shade of the beechen trees. There is no one so happy as the person who can be alone with his own thoughts at any time he chooses to be, and then at once mix in the busy world if he will. One does not want to be always alone, nor always under other people's eyes. My idea of a garden is something to retire to and enjoy by one's self, or with one's personal friends; with the whole world, for the time being, out of sight and out

of mind. Seldom have I visited a place so near my own ideal—the perfect *rus in urbe*—to be alone with nature and art as long as you desire, and to be again amongst men almost at will.

But though I sit and enjoy the cool of the woods and the lovely landscapes which, over this tract of 150 acres, meet the eye and attract the senses at every view, and watch the evening shadows as they are reflected on the beautiful lakes or deepen behind clumps and masses of trees in the wake of the setting sun, I am not left to believe that I have been transported by some fairy hands to distant Elysian fields and bowers, among which only the very few who are perfectly virtuous are destined to live; for hundreds of carriages, driving around the graceful curves of the beautiful roads, tell me that their occupants cannot be far away from some large place in which weak and weary human nature is doomed to dwell. They are returning home from a visit to the beautiful Azaleas and Rhododendrons, which the excellent proprietor and the estimable lady his wife are only too happy should be enjoyed by all as well as themselves. It was like a country fair, only with this difference, that here all who were visitors were of that class who had traveled; who had seen all the sights; who had come to believe that there was nothing more in nature or art for them to know,—and yet were they here amazed and pleased beyond measure with what Horticulture placed before them. As I sat in the shadows of that summer evening, and saw these hundreds wending their way homewards chatting with a pleasant animation over the gorgeous beauties they had seen, I could not help but look into the future and imagine the many beautiful gardens and grounds which the example of these generous people would inspire into existence; and I turned then to the past, where I saw nurserymen in the shadows wondering and lamenting that no visitors came to their grounds, and that for the tree peddler only did the modern planter care. And again I saw Horticultural societies with loads of debt, with exhibitions made up of mere husks of swine, with the absolute refuse of florists' greenhouses, depending on a flourish of trumpets and mountebank shows in order to give the public the full worth of the entrance fees. I have never lost faith that Horticultural excellence will ever attract intelligent people. If my faith had ever weakened, it would have sprung into as strong life as ever after what I had seen here that day. And it is a very simple

matter to grow and arrange Rhododendrons and Azaleas as Mr. Sargent has done. The Chinese Azaleas are nearly hardy, and the Rhododendrons entirely so; yet they are benefited by some slight protection. Here pits are sunk in the ground and covered with boards, and in these pits the smaller plants are kept. The larger ones are preserved in a sort of room, partly under ground, and which keeps out nearly all the frost. They are put into pots or boxes, and kept under these slight protections. When in flower they are planted in masses on the lawn to suit their sizes and colors, and those kept in pots sunk in the ground, pots and all, the turf being neatly re-laid over them. They are arranged in graceful forms of beds, with smooth pathways threading through them, and the beds edged with half circular sticks, plaited and forced into the ground for the occasion. A canvas tent, costing about \$100, and which will do over and over again for many years, finishes the whole, and the exhibit is complete. All the world went and admired the arrangements and the exhibit of the Rhododendrons at the Centennial, but this of one American gentleman was finer than that—not in numbers, but in beauty; because the plants were larger. And then there were the Azaleas, beautifully as well as wonderfully grown.

I should like to take the reader with me through these beautiful grounds, with their successive beds of lilies and roses, and many things as sweet and fair; by their ponds and streams and arbors and bridges, with their sunlight gleams by day and moonlight shades by night. In amongst the fruits and vegetables in the well-kept garden, and over the lawns and by the shrubby belts, where an indefinite variety of beautiful trees and shrubs and flowers are to be found. And above all, I should like to have them go through the houses where grapes and fruits are forced, where the agaves and succulents are cared for, and where ferns and flowers and colored-leaved plants are made to grow with a vigor and freedom they scarcely knew of even in their native lands. Further, if the veil which divides from the outside world the sacredness of an intelligent and happy home might dare be lifted, I should like to tell the reader how pleasant American country life might be when two of kindred tastes meet and join in the journey of life together. But the good reader must be satisfied with a mere letter, and be content with the remark that a visit to these de-

lightful grounds makes one wonder more than ever that so comparatively few American gentlemen at the present time incline to country life. After all, mere seaside and watering place show and fashion, like any other "rage," must have their day.

It would not do justice to these beautiful grounds without a word in compliment to Mr. Charles Saunders, Mr. Sargent's gardener. By what we could see here, he gives to an excellent practical knowledge of his business the rarer ability to manage men and proceed methodically to work, and it gave me much pleasure to hear him so well spoken of by his employer. Half the pleasure of gardening consists in a good understanding between employer and employed, and in the gardener endeavoring to meet his employer's reasonable views.

UNINTERESTING NEW JERSEY.—S. M., New York, says: "The most interesting articles in the GARDENER'S MONTHLY are always your travels. The trip in uninteresting New Jersey was most interesting."

["Uninteresting New Jersey" indeed! What have the Jerseymen to say to this? We say nothing to the Jersey women, for it is remarkable how many we find over the Union admirable wives and mothers who have been "stolen" from Jersey homes to enrich the community in other States. This we fancy tells its own story for them. But we really do think, and have often thought, that the men of Jersey might do more to make the beauty of their own State known.—ED. G. M.]

THANKS.—Our best thanks are due to the many bodies which have sent us complimentary tickets to fairs and other pleasant gatherings the past season.

BELA HUBBARD.—This well known horticulturist, of Detroit, has experienced a severe affliction in the loss of his two sons—Robert, aged 21, and Edward K., 23—by drowning in the Detroit river on or about August 24th, for the bodies were not found till almost unrecognizable. They had come on from the South to avoid the yellow fever.

DANIEL BARKER.—Our readers will be pained to hear of the death, by typhoid fever, of Mr. Daniel Barker, of Norfolk, Virginia, whose frequent notes on plants have so often interested and profited them. This occurred in the early part of the month, and we have no further particulars of his life and services as we write these

lines. He must have been somewhat advanced in life, as it is many years since we met him personally; but he was very active and enthusiastic in the field of labor he had but comparatively recently chosen for himself at Norfolk. We hope the good field he was so successfully cultivating there will be kept in the condition he has left it.

FERN ETCHINGS.—Mr. Williamson's book, "Fern Etchings," in which forty-five native ferns are figured, has just appeared, and proves

to be a very beautiful and valuable work. The price is \$7.50—by no means high for pictures of all our Eastern Ferns.

THE NORTH AMERICAN ENTOMOLOGIST.—This is a small monthly serial devoted to Entomology, edited by Prof. A. R. Grote, of Buffalo, N. Y., at \$2.00 a year. Besides descriptions of new insects and other matters of a strictly scientific character, it has a department devoted to "Fruit and Farm," in which the habits of insects are practically considered.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

PENNSYLVANIA HORTICULTURAL SOCIETY.—The late period in the month, and the pressure of numerous exhibitions all occurring at the same time, prevents a full notice of the Pennsylvania Horticultural Society's annual exhibition. We can only say that the exhibitors and the exhibits were nearly the same as those at the State Fair which opened the week before, and of which we give a brief notice. It was on the whole a successful exhibition.

HORTICULTURAL EXHIBIT AT THE PENNSYLVANIA STATE AGRICULTURAL SOCIETY.—Agricultural fairs we have to leave to the agricultural papers, but the Pennsylvania State Fair being so close to us, we have made a few notes of the horticultural exhibit.

The cut flower exhibit was large, and the various designs handsome and attractive. Here, as elsewhere, cut flowers seemed the most admired, and commanded more attention than other horticultural exhibits. Among the exhibitors of these articles we noticed the well-known names of Joseph Kift & Son, John Plender, La Roche & Stahl, T. Warnock, Craig & Bro., Pennock Bros., H. A. Dreer, W. T. Faust & Son, and Thos. Meehan, all of Philadelphia, and C. W. Turnley, of Haddonfield, N. J. Mr. Turnley's design was a small coffin of flowers, and partly from its originality attracted much attention.

W. T. Faust's exhibit was a floral wheel, with one spoke and the tire broken, and resting on a broken axle in a harvest field. At the base were the words "The harvest is over." As a funeral design it was most suggestive. There were other exhibits with new features in design, but the two above mentioned were the most pronounced departures from what we usually see.

The plant exhibitors were not so numerous. R. Buist, Sr., John Dick, John Sherwood, and W. H. Moon were all well observed. Among Mr. Buist's ferns we noticed the beautiful *Lomaria gibba cristata* and the variegated *Athyrium Japonicum*. Mr. E. S. Morris had on hand some young plants of the Liberian coffee. This sort is said to be much hardier than the common kind, and it has received much attention from the British Government, with a view to its use in the colonies.

The fruit display was very fair, as was also that of vegetables. We noticed collections from Gibson & Bennett, of New Jersey; J. A. Nelson; Solebury Farmers' Club; Cumberland Co. Hort. Society; Edwin Satterthwait; and from Egg Harbor one composed of fruits, vegetables, wines, etc. The Cumberland Co. Horticultural Society made a large display of fruit—we think the largest there—the display being in every way creditable.

We noticed from Jacob Moore some bunches of Moore's Early Grape. The color was very black and the berries were so crowded that we were reminded of indoor grapes which often

have to be thinned out, as these seemed to need. There may have been other exhibits we failed to notice, as the time for closing prevented a very extended inspection on our part; but we think we noticed all.

AMERICAN POMOLOGICAL SOCIETY.—This popular and influential body held its biennial session at Rochester, on the 17th, 18th and 19th inst. We have only space now to notice President Wilder's address, which was as follows:

Members and Delegates of the American Pomological Society:

GENTLEMEN:—Having held the office of President of this Association during its whole life, with the exception of two years out of thirty-one, I regret exceedingly my inability to be present, and by your continued favor, to occupy the chair, as I expected to do, at Rochester. But Providence seems to indicate, by the late accident which has impaired my physical ability, that it is not my duty yet to risk a journey so far from home.

For twenty-nine years you have elected me as your President, and with a unanimity far beyond my merit. I most sincerely desire ever to cherish a profound sense of gratitude and thankfulness for the honor conferred, and the confidence reposed in me. My thanks are especially due for the cordial and vigorous support I have received from my official associates. It was my intention to be with you at this meeting and to extend to you an invitation to hold our next session in the city of Boston, when and where I should lay down the high honors which you have so long conferred on me. But my physicians advise me not to take so long a journey and incur the labor which would necessarily fall upon me.

Resignation.—With thanks which no language can express, for the repeated honors conferred on me, and for your kind coöperation and support during this long period of official service, and with the assurance that I have no higher ambition than to be associated with you in a cause so honorable, and to be a co-worker while life should last, I deem it, under present circumstances, my duty to tender my resignation as President of the Society. Under the belief, so often expressed by you, that my official services were important to the establishment and success of our Society, I have willingly conformed to your wishes, and should my health be fully restored, which I fondly hope will be the case, I

will cheerfully respond to any call you may make on me. I beg to assure you that whatever my relations may be to you, I shall ever entertain a lively sense of gratitude to those with whom I have been associated and an ardent desire and ambition to promote the welfare and renown of our Society. If honor, distinction, and respect have been attached to the office, I have had them lavished on me; if toil, anxiety, and expense, then I claim to have borne my full share.

Progress.—When I reflect on the rapid progress which our Society has made since its establishment, how it has risen from the small beginning of a few States, until its jurisdiction embraces a catalogue of fifty States, districts and territories, with lists of fruits adapted to each,—how its list of members has increased from a few dozens to many hundreds of practical and scientific cultivators, and numerous sister associations have spread over our fair land, from the British Provinces to the Gulf of Mexico, all working together in harmony with each other to aid us in our great work of planting throughout our vast domain, gardens, orchards, and vineyards of the best fruits known,—when I reflect upon the comparatively small value of the fruit crop of that day, not considered as worthy of a place in our national statistics, now rivalling in value some of the most important crops of our country, I feel an interest that can scarcely be expressed in words. When we consider the astonishing increase in fruit culture, the immense number of trees sent from this place and its vicinity and from other parts, distributed all over this continent and even to foreign lands—the wonderful increase of peaches, grapes, strawberries, and other small fruits, and the ease with which they are sent to market—the rapid development of new lands suited to fruit culture, and that throughout our broad land, wherever the foot of civilization has planted itself, the enterprise of fruit culture is sure to keep pace with it—it is not easy to estimate its future importance, whether for the production of an article of luxury, of home consumption, or of foreign commerce.

In this connection permit me to refer you to the recommendations in my previous address; to the great increase of fruit culture in our country, and to the revenue arising therefrom. This is constantly increasing, showing a great augmentation since that time in our shipments abroad. I have not the statistics at hand, but as

an evidence of the fruit shipped from New England—not including those from Connecticut; which went to New York—we find that more than half a million barrels of fruit were shipped from Boston, and ports east from Boston in 1878. Of this number fully two hundred and fifty thousand barrels were grown in New Hampshire alone, three quarters of the balance were from Massachusetts, and the rest from Maine.

Lessons of Experience.—In that address I endeavored to sum up the experience which had been acquired during these years of our association, and the opinions I had so fully and freely expressed on former occasions on the topics connected with our art. I shall withhold any extended remarks in the present address, and simply refer to a few of the most important lessons which have been acquired by the experience of the past. I have often alluded to these before, but I desire to call your attention to them again, and first, the expediency of producing new and improved varieties from seed, either by cross-breeding or from the natural seed of the best known kinds extant. These are the best methods of increasing and preserving a perpetuity of choice fruits, so that they may be adapted to the various soils and temperatures of our widely extended and constantly increasing domain. Therefore, confirming my oft-repeated suggestions, I most earnestly desire to enforce them and thus obtain in the future more and more of those superlative fruits that grace the catalogues of different sections of our country. Go on without fear of disappointment. This is the road that leads to success. Who knows what glorious fruits you may create to bless the generations that are to follow you?

Advantages of Cross-Fertilization or Hybridization of Plants.—What wonders have been achieved in the vegetable kingdom by cross-fertilization in our own time! But still greater wonders are to be realized by this art as time advances, producing new and improved varieties of still greater excellence. Instances are so numerous of wonderful improvement by the application of this art in the production of magnificent fruits, flowers, and vegetables, as to need no reference in detail. I have so often, during the forty years of my own experience, alluded to the importance of this art as the true means of rapid progress, that I refrain from extended remark and desire only to repeat again my former advice, to plant the most perfect and mature seed of our very best fruits, and as the means of

more rapid progress to cross-fertilize our finest fruits for still greater excellence. Thus I have discoursed to you for many years—thus I have promised to do while I live. This is our work, to direct and help Nature on in the course of improvement.

Who that has witnessed the amazing improvement by the application of this art in the rose, camellia, dahlia, azalea, and other plants in our own time,—who that has seen the hybrid grapes of Ricketts, Rogers, Ellwanger & Barry, Moore, Campbell, and other practitioners, can doubt the potent influence of the cross-impregnation of plants? Who that reflects on the astonishing advance made by hybridization of the camellia in France and Italy, the camellia and azalea in Belgium, England, and France, and the improvement in the vegetable kingdom generally, can hesitate to say that this art is the great secret and source of the wonderful advance which has been achieved during the last half of the present century? Who that has seen the magnificent plants in our own conservatories, or the grand plant collections of England produced by this art, but would exclaim, "Truly, here, at last, have we found the philosopher's stone!"

This improvement is all within the hand of man, to use it as he will. The field of progress is endless, and it is your duty, gentleman, to occupy the ground. The same Divine power that gave us the infinite species of plants and trees, also furnished them with the ability not only to perpetuate themselves, but under judicious treatment, and a wise selection of parents, to produce indefinitely still better varieties than we now possess. In a word, we must depend mainly on the production from seed for fruits adapted to the various locations of our vast territory. And what richer legacy can a man leave to the generations that are to follow him, than a fine, delicious fruit, which he shall have originated by his own hand. This will be a living monument to his memory when posterity shall recline beneath the shade of its branches, and pluck the luscious fruit from the trees which he has left them.

Thinning and Packing of Fruit.—The importance of properly thinning our fruit trees when bearing redundant crops is more and more apparent. To produce fruit that commands a good price in the market has become an absolute necessity. This is seen especially in that intended for exportation, apples of good size, fair and properly packed, commanding in the English

market fully double the price of those which had not received such care. Such also is the case in our own markets, Baldwin apples of one grower bringing two to three dollars per barrel, while his neighbor's, which had received no such attention, brought but a dollar. To produce such fruit, trees must not only have a good cultivation, but should be properly thinned,—excessive production being always at the expense of both quantity and quality. This lesson we learned long ago, and I have often endeavored to impress upon cultivators the importance of following it. Therefore you will excuse me for calling your attention to it again.

The export trade of our American products is constantly increasing, and among them the fruits of our country—especially apples—are always in regular demand, and as new facilities are afforded for their shipment a constant trade will be ensured of great importance and permanency to our commerce. Nor is this demand likely to fall off. These facts should encourage our fruit growers to devote more and more of their broad acres to the production of fruits to meet the constantly increasing foreign demand.

Value and Importance of Our Society.—I have often spoken of the salutary influence of our association. The more I reflect upon its operations the more am I impressed with its usefulness, and with the importance of perpetuating it through coming time. "The idea of voluntary combinations and associations," said Mr. Webster, "is the great modern engine of improvement." This power of association, bringing in contact man with man, and mind with mind, and the information acquired thereby, is of more value than the same information derived from books. It is this centralization of experience which has produced by our Society and similar associations the great improvement which we have witnessed in our American fruits. Who can predict what the future influences of our own Society may be when our vast unoccupied territory, suited to the cultivation of fruits, shall be occupied for that purpose? Let us therefore discharge the duties of our day and generation, so that our children may have cause to bless our memories, as we now cherish the names of those who laid the foundations of our Society, and have brought it forward to its present flourishing condition.

Our work is of great magnitude, embracing an entire continent, opening up to us new resources and demands, and calling for constant and untir-

ing energy and enterprise. The importance and usefulness of our association is seen in a review of its work for twenty-seven years, which I gave in my last biennial address.

We have made great advances during the thirty-one years of our history, and experience from the best sources is flowing in to us every day. The spirit of investigation is now thoroughly alive, and we have opportunities for improvement such as have never been afforded to any other Pomological Association on the globe. Our resources are abundant, and so kindly does nature coöperate with us under the benign influence of man, that he can mould her almost to his will, and make of the rough and acrid wilding a most beautiful and delicious fruit, and thus we can go on producing indefinitely as fine varieties as we have ever seen.

When we review what has already been accomplished, in a country so varied in soil and climate, who can set bounds to our progress during the remainder of this century, where, by the exchange of personal experience the representatives from the different parts of our continent become kindly affiliated and united in the bonds of friendship and reciprocal regard, and by promoting the cause in which we are engaged we have learned to respect each other.

All this has been accomplished without financial aid, except that received from membership, and occasional sums from individuals to meet deficiencies. In this connection I desire to state that I have paid over to the treasurer three hundred and twenty-seven dollars and twenty-nine cents, being the balance in my hands of the Downing Monument Fund, with interest to this date. This has been done in accordance with the consent of the heirs of Mr. Downing and his administrator, and the committee who had in charge the erection of the monument.

But the time has now come when means are wanting to constitute a fund to insure the publication of proceedings in future. I take the liberty of suggesting the propriety of soliciting from all life members who have paid but ten dollars, to forward to the treasurer ten dollars more each, and make their contributions the same as are required now for life membership. And permit me to add that no better appropriation of money can be made, and I trust that when our friends are making donations and bequests for benevolent objects, they will remember the American Pomological Society.

(To be continued.)

THE GARDENER'S MONTHLY AND HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

It is now so well understood that we may have an immense addition to our list of hardy evergreens if we will only shelter them, that we expect all those who love these varied Winter favorites will take measures this season to plant shelter belts in exposed places, or else to set the common hardy trees like Norway and Hemlock Spruce, and Scotch, Austrian and White Pines thickly about, so that the rarer ones can be put between them.

Not a quarter of a mile from where we are writing these lines are three beautiful specimens of the *Picea Morinda*, one of them perhaps twenty feet high, and forming a picture of beauty that we seldom see in any tree. Yet if we apply for a young plant in any Philadelphia nursery we should be told that the tree was "too tender for that latitude." The secret of the success of these specimens is that the wind is on all sides broken by a number of Norway Spruces about thirty feet high.

Almost all young trees are tenderer than they are when older. It is therefore no test of the hardiness of some rare thing, that a small plant is killed in the winter. Silver Firs almost always get killed back for a few years in this sec-

tion, unless protected, but yet gain a little in strength. After they are ten years old they will endure our hardest weather. So Spanish Chestnuts, English Walnuts, and many others, will die back considerably, until they get strength. Therefore, protect any valued young plant, if possible, no matter how hardy its reputation may be.

Leaves are the natural protectors of grass; clearing them from lawns has a tendency to impoverish the vegetation. Mowing of course also weakens a lawn. This makes an occasional top dressing advisable,—any decaying matter will do. This is the season to apply it. We would not, however, use stable manure when other can be had. It is so disagreeable in color all winter,—and there are other objections besides. Sometimes lawns, after frequent mowings, become so weak, that not even manurings will bring them up again; for, as we have often taught our readers, cutting off green herbage weakens vitality. When this is the case, small Veronicas and other minute weeds, which the scythe does not cut, grow strong enough to crowd out the enfeebled grass. We have seen resort made to weeding in such cases with little beneficial results. The best plan is to break up the lawn at this season, let it lie all winter, and seed it again anew in the spring. The Blue Grass of

Kentucky or Green Grass of Pennsylvania—botanically *Poa pratensis*—is better than any "mixture" for making a first-class American lawn. For reasons we have given, lawns run out faster when a mowing machine is used, than when scythe-cut, but the advantages of a machine are so great, that it is no wonder they are now in general use. There are many good ones now, all excellent for the purpose.

Every one who has dug up a potato knows that when the tuber has finished its growth, all between it and the parent stalk dies. If the potato were to remain undisturbed till Spring, frost and other things of course uninjuring it, it would push up from the place where it stood, and a new set of potatoes push out, and the space between them and the original, get wider every year. So year after year there would be this continual progression,—a wandering away from the first centre, until in time the living plant might be a mile away from the original spot which gave it birth. Something of this kind goes on in all herbaceous plants,—a part progresses, and a part dies every year. It is for the want of this knowledge that so many friends lose these plants. Though all herbaceous plants move in some such manner, they do not all go directly under ground, but make bunchy stocks just above ground. In their native places of growth they manage to get covered with decaying leaves from the woods or shifting sands on the plains, but in cultivation nothing of this kind can be naturally accomplished, and unless art comes to aid the plants they soon die away. An Auricula, a Primrose, or a Carnation is a good illustration of this. In the two former a new crown is formed on the top of the old one, and as the lower parts in time die away, unless new earth is drawn up, success with such flowers will not be great. The best plan is to take up and replant every few years, or cover the running parts above ground with earth, so that they may have a chance to get new roots from the advancing stocks. This is noticed here at this season to show that earth is the natural covering for herbaceous plants, and therefore one of the surest ways of preserving them safe through Winter is to draw earth over them. In the Spring they can be unearthed and then divided and set a trifle deeper than before, which is all they want. We are often asked how to preserve Carnations, Chrysanthemums, Pansies, Phloxes, Hollyhocks, and so forth, safe till Spring. The principles here laid down will explain the practice.

COMMUNICATIONS.

THE CERCIDIPHYLLUM.

BY PROFESSOR D. B. PENHALLOW, JAPAN.

A note in the MONTHLY for May, having reference to the *Cercidiphyllum*, serves as a suggestion that a few words respecting its natural habitat, and value both for ornamental and timber purposes, may not be untimely; and I am the more inclined to offer what little I can, since I fully believe the tree will not only prove perfectly hardy in Massachusetts, but will be valuable for shade and also as a source of timber.

The *Cercidiphyllum Japonicum*, (Katsura) is found sparingly in the mountain ranges of Nippon, and abundantly in the forests of Yengo, where its true home appears to be. So far as my observations have extended, it is but rarely found growing on bottom lands, or where there is a large accumulation of moisture, but it delights in the well-drained and gentle slopes of foot hills, along the base of which it forms a narrow belt, its zone of distribution, with reference to altitude, being slight, since it does not appear to thrive on the higher and more completely drained slopes.

It is very common in the larger trees for the trunk to divide from two to five times, at a distance of eight or ten feet from the ground. Two trees of very common size, were measured at a distance of three feet from the ground, and in each case found to have a circumference of twenty-seven feet. The common height appears to be between eighty and one hundred feet.

The foliage is small, graceful and compact, while the tree as a whole, forms a stately and most beautiful object. The flowers are so inconspicuous as to be of no value for ornamental purposes, while the fruit, consisting of small pods about three-fourths of an inch in length, would be no serious objection to the tree as an object of ornament, on account of its diminutive size, while any objection might arise on this account, could be easily overcome by taking care to select only the staminate trees for planting.

That there will be little or no difficulty in establishing the tree in Massachusetts, seems very probable. Comparing the meteorological record taken at Amherst, Massachusetts, for eleven years from 1867-'77 inclusive, with the record taken at Sapporo, for the years 1877-'78, we find but slight difference in the climates so far as temperature and humidity are concerned, and though a comparison of an equal number of

years might show somewhat greater differences, it appears safe to venture the assertion that, in the mean annual temperature and humidity of Amherst and Sapporo, there is no essential difference.

	Temperature.	Humidity.
Amherst, for eleven years.	46.63	74.18
Sapporo, for two years,*	46.16	74.17

A possible difficulty might be encountered in accustoming the tree to the sudden and often severe changes incident to the climate of New England, since the changes peculiar to Hokkaido weather are more gradual and much less severe. Doubtless any such difficulty could be overcome by giving the tree a certain amount of protection; or, raised from seed, it might adapt itself readily to the climate.

Respecting its special value for timber, but little can be said as the result of experimental determination, and the question of durability can only be decided at some future time. The wood is light both in color and weight, strong and easily worked. The grain is rather close. For fine indoor work and the manufacture of furniture, the Japanese employ it very extensively, while the Ainos consider it one of the best of woods for the construction of "dug-out" canoes, both on account of its lightness and strength, while they can also find an abundance of trees in which the trunk is perfectly straight and free from branches, for a distance of twenty feet from the ground.

It seems quite probable, from the uses made of the wood, that it must be of durable quality; and that it will prove a valuable acquisition to the ornamental and timber resources of America, there seems but little doubt.

HARDINESS OF JAPAN MAPLES.

BY E. MANNING, HARRISBURGH, OHIO.

Last Fall I got from Philadelphia a plant of the new Japan Maple, *Japonicum atrosanguineum*. I planted it out, turned an old nail keg over it which was minus one stave, all joints open and half the head turned down. I thought to protect it from the cold and the rabbits. After the loss of my Japanese Persimons, I was anxious to examine my new maple, and to my delight, not one bud was injured.

In the Spring I got three more from New York, and these are growing and doing well, and I expect to try other sorts now.

The four I have are said to be the best of the

*The record for Sapporo is complete for only two years.

collection, and I can say safely, although small, they must be seen to be appreciated. No description that my pen can give is sufficient to do them justice. Their varied colors are yet unimpaired, and as they gain in size, no doubt they will be exceedingly beautiful.

EDITORIAL NOTES.

DECAY OF CENTRAL PARK.—In a somewhat recent article in the *New York Times* we find the following:

"It is needless to recite instances; the whole park is full of illustrations of negligence and want of knowledge. Shrubs that should be pruned and kept in proper shape are untouched, and straggle at will. Trees whose beauty consists in being furnished with foliage from the base are trimmed up to disfigurement, and vines are allowed to hide the beauty they were intended to enhance. Dead and mutilated trees are left standing; living trees of tender age are dying for want of culture, and by the choking clasp of grass and weeds. Trees are growing together and hiding the glimpses of different lawns, until in a short time the original effect of the park, which we have all enjoyed, will have vanished in a meaningless mass of trees and shrubbery. Many years ago, while in England, I purchased for the park, at the request of the commissioners, a choice collection of rare evergreens. Since that period large purchases of the same have been made in Europe and America. There should thus be now in the park some of the finest specimens in this country. I could not find them. The question is pertinent. Have they been destroyed, or died from neglect, or what? As originally formed, the various parts of the park were in harmony. The artificiality of the lower portions was the connecting link with a great city. Then came the ramble and the lawns and the wildwood. The designers planned vistas and lawn-stretches and openings, supposing that there would always be enough intelligence to keep them open, and to preserve the symmetry of the parts. Should the spirit of their plans not be recognized and sustained, the large expenditure which New York has made will have lost half its value.

"Structures now decaying may be restored, water shores may be repaired, vines may be taken from the rocks, vistas may be opened, but nothing can restore existence to the large elms

which have been cut down, or beauty to the trees which are crowded together all over the park. To many the neglect of a year or two longer will be fatal. They will then have acquired a one-sided growth, and thinning out will make it so apparent that the only remedy will be to cut them down entirely and plant others in their places. Money cannot control the elements of time; trees cannot be produced in a day, and if the remedy be delayed too long, many years of time and large expenditures of money may be required to repair the serious injury.

"Twenty years ago I walked with Sir William and Dr. Hooker around the level plain of Kew Gardens, and they were full of praises of the varied surface of our Central Park and its picturesque capabilities. As we looked upon the perfect turf of Kew, its large collection, and the exquisite keeping of all its parts, I wondered if the time would ever come that Central Park would be other than it then promised. My wonder has become a reality; the park has become a cause of sadness to those who remember its inception and former beauty.

"My summing up must, therefore, be that the Central park was once a thing of beauty, charming all with its structures, its plantations, and its keeping, and recognized by all connoisseurs as the best example of landscape gardening in the world; that it is now losing its beauty, is fast going to decay, and unless speedy action is taken will soon be past remedy. The open spaces and the thickets will remain in the midst of a large city for the relief of a crowded population, but the old charm will be gone, and will be sought for in vain by future visitors."

The editor of this magazine had a two hour ride through this park about the time this must have been written, and is sorry to feel that the picture is not at all over-drawn, and the ride left on him the impression that this once celebrated piece of work is fast going to ruin. On inquiry as to the cause of this rapid decay, he was told that it was "because the park was now wholly run in the interests of politicians. Mr. Dawson, who is only a politician, gets \$3,500 per annum, and there is not a man in any position that brings over \$2.00 per day that knows one thing from another, except how to vote right at election times." And then there was much abuse of Mr. Dawson and the politicians.

We must say, as we have said when the public squares of Philadelphia have been criticised, that if the people of the United States can de-

vise no plan whereby the "politician" can be kept from ruling, they should not blame the men who rule. We often wonder that considering the immense labor, not to say money, these men spend to get into positions, it is wonderful they give back to the public so much as they do. Going back to the Central Park, we are free to say that it is fully as bad as the *Times* says it is, but considering that Mr. Dawson and his aids are "mere politicians," we ought to be very thankful that it is not in a much worse plight than it is. We will not join in the crusade against them, but blame the respectable citizens of New York, by whose acts or apathy they get there.

THE LAUREL HILL CEDAR OF LEBANON.—One of the two magnificent specimens, perhaps fifty feet high, which so many persons visited Laurel Hill expressly to see, and which indeed was one of America's arboreal treasures,—as the tree so seldom does well here,—has been cut down, because it prevented the visitors from having a good view of the obituary poetry, probably, on the graven marble. Great inducements were offered to induce the woodman's axe to spare that tree, but it fell in spite of all. Poor simpleton! That tree would have been a monument, long after the marble ceased to be of any interest to anybody. It would have a story which would be read long after the most enthusiastic "Old Mortality," would give up the job of re-cutting his name. After all it was the gentleman's own tree, and he had a right to do as he pleased with it.

INSECTS ON PUBLIC TREES.—Mr. William Doogue has made a report to the Committee on Public Grounds, of the city of Boston, which has been officially published. He says that the city owns 22,254 trees. Some have proposed a heavy appropriation from the taxes to clear these trees of cocoons and the eggs of insects. He shows that with the vast number of uncleared private trees, and forests, the money would in a great measure be thrown away. Also by facts ranging from 1848, to the present time, that insects appear and disappear in these large quantities periodically, probably because their enemies follow and prey on them. He thinks horses, bad pruning, and other injuries, wholly within human control, are far more destructive to street trees than the insects; and it is because trees are so thinned out by these neglects, that the insects crowd to the trees that are left. He be-

lieves that if more attention were given to these matters, the trees so far as insects are concerned, might be safely left to the birds and other natural causes. It is a very sensible document, and the Committee have shown good sense by adopting it.

SUNDAY OPENING OF THE GARDENS OF THE ROYAL HORTICULTURAL SOCIETY.—These for the first time in its existence, were opened to the public on admission tickets, on the first week of September last. They were crowded.

MUTILATING THE GIANT TREES OF CALIFORNIA.—Mr. W. A. Sanders, writing to the *Pacific Rural Press*, says: "Vandalism may sound harsh, but no milder one will express the way that some of these trees have been mutilated. There is an abundance of bark and wood obtainable from fallen trees; this ought to suffice; but it does not. Visitors have mutilated some of the finest trees in the grove for relics to carry away. I believe that, had the body of Washington, the revered 'Father of our Country,' been embalmed, so that we could look upon his features as in life, there are people who would not be content without breaking off a piece of an ear or digging out an eye to carry off as mementoes of their visit to his tomb. This ought to be stopped. One of these forest giants must soon yield its life to the rapacity of these relic hunters. But that is not the end. Other trees will follow in disfigurement and destruction, as the number of visitors increases, until all will be deformed and dead; victims to a practice which, by statue, ought to be made criminal."

MAGNOLIA GRANDIFLORA IN THE NORTH.—Among the recent losses to arboriculture is the famous magnolia at Laurel Hill Cemetery, which for a number of years past has been one of the tree-lover's delights. It was sheltered on the windward side by other trees, the growth of which would have killed it in any event. These had to be taken away, but this simple exposure was too much for it. There was once some half dozen very large trees about Philadelphia, but we believe all are gone now.

A FINE ELM.—On the grounds of Mr. J. Frazer, of Rochester, N. Y., is a specimen of *Ulmus viminalis*, about forty feet high, remarkably beautiful. It is a small-leaved slender-twigged variety, and one of the handsomest of the many varieties of the old English elm.

OUR NATIVE FLOWERS.—Col. D. S. Curtiss

recently gave a lecture on this subject before the District of Columbia Horticultural Society, which was listened to with marked attention. He showed that the study of our native flowers has a great charm in the tracing of resemblances, while the many points of interest brought out by modern science invests them with an interest unknown to our ancestors.

THE LILY DISEASE.—As is generally known some lilies are liable to the attack of a fungus which weakens and ultimately destroys them. This is particularly the case with the large gold-banded Lily of Japan, *Lilium auratum*, which though bought by the thousand every year, one seldom sees in flower. Mr. Berkely has been examining a fungus on some lilies in England, and probably the same, and finds it to be *Uredo Frosti*, and very closely related to the fungus which causes the onion disease.

SCRAPS AND QUERIES.

VARIEGATED ARBORVITÆ.—C. F., Rye, N. Y., writes: "Enclosed I send you a variety of *Arborvitæ*, which originated with me as a seedling. It is perfectly hardy, free grower; it stands about two and a-half feet high; four years old. Do you think it is worth introducing, or are similar varieties in market? Please answer in the MONTHLY, if you think it worth it."

[This is a very beautiful variety; but we would not say from a specimen in a letter how far it differs from *George Peabody*, and other kinds. In an *Arborvitæ*, habit is often as distinct as the peculiarities of foliage.—ED. G. M.]

DEUTZIA SCABRA.—Mr. G. F. Chandler, South Lapcaster, Mass., sends a specimen of what appears to be the true *D. scabra*. This form is so nearly related to *D. crenata*, that in spite of the differences recently pointed out in our magazine, there is little distinction between them for ornamental purposes. The form known as *D. scabra* is rather more erect in habit of growth than the other.

BLUE TRUMPET TREE.—A Worcester, Mass., correspondent, says: "Why do you call the *Paulownia imperialis*, 'Blue Trumpet Tree?'" The name is not ours. It is in common use in the West. The name probably suggested itself from the resemblance of the flowers in shape to the common trumpet creeper.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

The growing taste for cut flowers is commendable. Thousands who could never be brought face to face with nature, are introduced in this way, and many have enjoyment who never thought of the pleasure a plant gives growing in the ground, and which has been made to grow under earnest hands and the soft influence of loving eyes. There is much amusement at the vulgar taste which makes sailing vessels, birds, and household furniture out of flowers. Correct taste would have them arranged merely as cut flowers; in bunches or baskets, in vases or other vessels.

We believe that flowers themselves can be made to ornament other things, without being forced to represent the things themselves. And the good people who argue in this way are undoubtedly correct. Yet we must not forget that all good things have to grow. There must be a beginning to all things; and the love of flowers in ungainly ornaments though it be a vulgar love, is a good beginning. We get the love first, and the more tasteful love will grow. For this reason we look with some charity on the curious devices seen at marriages, funerals, and horticultural exhibitions, and do not deride them as some do. We hope the florists will have good success in this business, and that every home will be decorated with cut flowers the coming season. We would have them intelligently used of course; but at any rate let them be used.

It is however a misfortune that the rage for cut flowers seems to interfere somewhat with the nice greenhouse collections people once loved to have. Now we find little else but Geraniums, Bouvardias, Heliotropes, Mignonettes, Carnations, Tea Roses, Callas, Camellias, Azaleas, and a few other well known things, that do for cutting. The beautiful Ericas about which Mr. Fyfe recently wrote, and the other interesting Winter-flowering things from the Cape of Good Hope and Australia, which in the past

made the Winter greenhouse so very enjoyable, are now seldom seen. This is the dark side of the cut flower era. It is to be hoped it will improve in this respect.

Coming from greenhouses to mere room plants, we think there is a much greater improvement manifested in these the few past years than ever before. There are few houses now of any pretension to taste and elegance that do not provide for the window plants. The knowledge that it is fumes of illuminating gas that injures them more than any thing else, has led to various contrivances to shut off the atmosphere of the plant cabinets from that of the living rooms, and there is little left to insure success than watchfulness. Insects have to be looked after; the plants washed occasionally; the earth never over-watered, nor never kept too dry. These with all the sun light possible, make nearly all that is required for successful window culture.

EDITORIAL NOTES.

THE BEDDING AT FAIRMOUNT PARK.—The hundreds of thousands who saw and admired the bedding at Fairmount Park during the Centennial, would have been more than delighted with it the past season. It is conceded on all hands that it was the most successful attempt at this style of gardening ever attempted in this country. It is to be hoped that the Park Commissioners will keep on in the good work they have begun. It is pleasant to write that while the work in some of the parks in our leading cities is falling behind, that of Fairmount Park meets with general praise.

ORCHIDS IN THE OPEN AIR.—At the October meeting of the Germantown Horticultural Society, two species of Stanhopea were exhibited in bloom, filling the hall with their delicious odor, and which plants had been simply hanging out in their baskets on the branch of a tree all Summer. They were exhibited chiefly to show how easily this class of orchids could be

grown. One plant, Stanhopea oculata, had six flowers in its truss. Probably a large number of summer-blooming orchids could be grown in this way. In a recent number of the *American Farmer*, we find a concise list furnished by Capt. Chas. H. Snow, whose articles on Orchid Culture in our magazine, the readers well remember. This is the list:

"Dendrobium nobile, blooms from January to May; D. transparens, from January to May; D. Wardianum, from January to May; D. heterocarpum, December; D. moniliforme, December; Cattleya Mossiae, May and June; C. labiata, from August to November; C. Warnerii, May and June; C. citrina, May, June and July; C. Trianaei, December; C. Harrisonii, August; Lælia anceps, December; L. albida, April; L. autumnalis, from November to January; L. Perrini, November; L. crispa, July; Lycaste aromatica, early summer; L. Skinnerii, from January to June; Odontoglissum grande, October; O. Insleyii, from December to January; Oncidium crispum, June; O. Cavendishii, December; O. leucochilum, from May to July; O. divaricatum, Winter; O. Barkerii, October; Cœlogyne cristata, February; Epidendrum vitellinum, from January to July; E. nemorale, June; Miltonia candida, August; M. Clowesii, August; Tricopilia suavis, April and May; T. coccinea, April; T. tortilis, a Summer and Winter variety. Stanhopeas in variety should be grown in open baskets. Vanda teres, June and July; Zygopetalum, in variety, December and January; Cypripedium insigne, December and January."

Following the above, the Captain adds: "This list could be made much longer, but these are all handsome species, not costly, and remain long in bloom, except the Stanhopeas."

THE VICTORIA LILY.—Those of our readers who can recall the horticultural events of thirty years ago, may remember the intense interest excited by the flowering of the Victoria regia, at Spingbrook, near Philadelphia, in a house especially built for it by that liberal patron of horticulture, Caleb Cope. Californians are now having the same exciting experience, a plant being in full bloom in the conservatory of the Park at San Francisco. A dozen flowers are reported to be open at once, showing the plant to be in magnificent health.

THE GLOXINIA.—Attention to these beauti-

ful Summer blooming greenhouse plants seems to be reviving, and the following from the pen of an experienced cultivator in the *Garden* will be appropriate:

"To give a succession of flowers through the Summer a portion of the plants may be started about the middle of February, and a further supply in March; let the pots be proportionate to the size of the tubers—7 inches in diameter will be large enough for the second season. In potting just leave the crowns of the tubers on a level with the surface of the soil, and immediately they are potted place them in a temperature of 60° at night, and 5° or 10° warmer by day; if not, put in heat as soon as potted, the roots will rot; the soil ought to be in a slightly moist state when used, and little water should be given until growth has commenced. Treat them throughout the season as recommended for the preceding Summer as to heat, shade, air, light, and moisture. As already pointed out, their satisfactory flowering will depend upon their receiving abundance of light; a shelf over a path within a few inches of the roof is the best place for them, for in such a situation not only do they get the requisite amount of light, but they also receive more air, both being so essential to short sturdy growth. This Summer they will bloom well, and increase considerably in the size of their roots, yet it is in the third and fourth years after sowing that they will make the finest display.

When the bulbs get large they may be divided, retaining to each portion some of the buds with which the crown is furnished; but the most general method of propagation, and by far the most expeditious, is by leaf-cuttings. If the leaves be taken off in the Summer when fully matured with a portion of the leaf-stalks, and this portion inserted in 5-inch pots, drained and filled with half peat, or loam and sand, with ½-inch of sand on the top, and kept in a brisk heat, slightly shaded, and the soil moist, they will form healthy bulbs before Autumn; or, if the variety that is to be increased be scarce, several may be produced from single leaves by cutting through the midrib on the under side in four or five places, and laying the leaves flat down on the soil in pots or pans, prepared as above, but sufficiently wide to admit of their being so placed. Over each place, where the midrib has been severed, secure the cut parts on the soil with a pebble about the size of a cockle, at which points bulbs will be formed, which, when the

top has decayed in the Autumn will require to be wintered, and afterwards grown on in every way as recommended for the plants raised from seed."

STEPHANOTIS FLORIBUNDA.—There is nothing more desirable for cut flower work than this. Its waxy, white and very sweet flowers do not wither soon, and hence are far superior to orange blossoms for decorating the hair, or for any other similar use in floral ornamentation. The misfortune is that it does not bloom till May in our gardens. If it could be brought out in Winter, its value would be inestimable. We give from the *Gardener's Chronicle*, an account of one successful effort to advance it:

"It would be difficult to point to any sweet-scented flower as being held in higher general estimation than *Stephanotis floribunda*. Its snowy, wax-like blossoms are alike beautiful, growing on the plant, as they are fitting for the wreath intended to deck the brow of the bride. It is a flower equally valuable to the many who have to provide for the no small requirements of private establishments as it is to the grower for market, who knows he can always calculate upon making a high price for it if he can only get it in early enough at a time when it is necessarily scarce. Its naturally free-flowering habit when it receives the treatment it requires, makes it plentiful in summer, but it is in the early spring that it is most prized, and Mr. Baker, who so ably practises the gardener's art at Coombe, has hit upon a way by which he is able to have it in bloom each year in April. The plant occupies a position on the north end of a span-roofed house running north and south, and is trained on the roof in the usual way. About the end of August each summer, it is freely cut in, the shoots shortened to less than half the length of the house, and all weak growths removed, it is then started into growth and kept going all through the autumn, and slowly during the winter as well. So managed, it sets flowers as the young wood is formed, just in the way usual with spring-made growth, and begins to open in April. It continues in blooming for a long time; in fact the quantity of flowers it produces under this treatment is something unusual. By this method the plant is kept free from weak shoots, and its leaves are almost as broad as those of a common laurel. The house is used for flowering *Eucharis amazonica* and other things that need a similar temperature through the winter, consequently there is heat

enough to keep it on growing during the season when this plant is generally at rest. Mr. Baker has other plants of *Stephanotis* which he treats in the ordinary way, that succeed it in blooming, and he is thus able to have a constant supply from early spring until the autumn is well on."

THE COLORED-LEAVED CALADIUMS.—These are coming into more general use as ornaments in Summer gardening. They delight in a moist and partially shaded situation.

ICE FLOWERS.—Who has not admired the fantastic floral devices that may often be seen on frozen glass through the crystallization of water during hard frost in Winter? These are so interesting and beautiful that for some time past endeavors have been made to reproduce them in drawings, but the most exact likeness of them has been obtained by means of photography. This has been done by M. A. Martin-Flammarion, and the engraving, taken from his stereotype, proves how well he has succeeded. No great stretch of imagination would be required to believe them to represent a bouquet of delicate flowers and fern leaves, embroidered on a thin curtain of light and shade. A few years ago M. Haas succeeded in fixing these charming devices on glass in the following manner: He exposed to the cold a horizontal sheet of glass slightly covered with water, on the top of which was put some enamel powder. The rime formed itself, and when the ice evaporated the floral representations were formed in enamel. Placing the glass thus prepared in an oven, the enamel, in melting, fixed in a durable and permanent manner the crystallizations.—*Garden.*

NEW OR RARE PLANTS.

DRACÆNA TAYLORI.—Many of the beautiful forms of *Dracæna* that adorn our gardens, are species introduced direct from their native countries, but others are garden forms raised by enterprising florists. Among these last, is the one which we now bring to notice, which was raised by the Messrs. Veitch, of the Exotic Nursery, Chelsea, London, who give the following account of it: "A hybrid raised at our nursery, having for its parents *D. magnifica* and *D. Mooreana*, and in every respect superior to both.

In the breadth and depth of its fine leaves it follows the former, but they are larger, more undulated, and more effective; in the color of

the petioles and of the younger growth it follows the latter, with the color heightened.

It is a very handsome *Dracæna*, of dense and robust habit, with noble foliage deeply colored, the surface having a decided metallic lustre, with a tinge of crimson; the petioles of the leaves have a light but rich crimson hue."

is said to produce fronds seventeen feet in length; and as seen in this country, under pot culture, it has caudices as thick as one's finger, and fronds of seven or eight feet in length. To this stout and vigorous constitution it adds the elegance and gracefulness of minute subdivision, so that its fronds, though large, are utterly devoid of coarse-



DRACÆNA TAYLORI.

DENNSTÆDTIA DAVALLIOIDES YOUNGII—Moore.—The following description of this beautiful fern is taken from the *Gardener's Chronicle* of March 24th, 1877: This fine new garden fern comes to us from Australia. It is no doubt very nearly related to the old *Dicksonia davallioides*, *alias* *Sitobolium davallioides*, now referred to the genus *Dennstædtia*, but is much larger in its growth than we have ever seen that plant, of which for practical purposes it may therefore be regarded as a giant form. In its native state it

ness, and it is, in fact, a remarkably ornamental plant, well adapted for occupying any bold and prominent position in a stove rockery, or even as a pot plant in a collection of stove or greenhouse ferns it will always hold its position. The caudex, as already described, is as stout as one's finger, and of creeping habit, progressing forward somewhat freely, and throwing up its amply spreading fronds at intervals. The stipes is stout, nearly $\frac{1}{2}$ inch in diameter, and of a darkish brown color below, golden-brown above, and

quite smooth. The fronds are nearly ovate in outline, and decompound, the pinnæ $1\frac{1}{2}$ foot long, the pinnules five to six inches long, lanceolate-acuminate, and the ultimate pinnules, those of the third order, $\frac{1}{2}$ to $\frac{3}{4}$ inch long; these ultimate pinnules are obliquely oblong, deeply cut into blunt oblong-toothed lobes, of which those at the base of the anterior side are the largest. The sori are small, placed near the base of these ultimate lobes in the sinus of one of the anterior marginal teeth. The fronds are herbaceous in texture. It will thus be seen that this fern, while growing to a large size, is one of the most finely cut of all the large-growing sorts, of herbaceous texture, and when throwing out its boldly arching fronds, from an elevated position on rockwork, or from a large pot set up on a pedestal, it will have a very fine effect. It was unanimously awarded a first-class certificate by the Floral Committee when exhibited at South Kensington, on the 7th inst., and gained a similar award at the Spring show of the Royal Botanic Society on Wednesday last."—*B. S. Williams.*

GLADIOLUS PAPILIO—Butterfly-flowered Gladiolus.—This beautiful species was introduced

from Cape Colony some few years ago in the Kew Gardens, where it flowered, and was figured; and the following are a few extracts taken from the *Botanical Magazine*:—"The Cape Colony abounds in species of Gladiolus, amongst which that now figured appears the most beautiful, though not the most gorgeous, that has hitherto been made known. Nothing can well exceed the delicacy of the pale purple of the upper petals or the vividness of the deep purple and golden yellow markings of the lower ones." We received this from one of our correspondents at the Cape.—*B. S. Williams.*

IRIS ROBINSONIANA—The Wedding Flower of Lord Howe's Island.—A gigantic species, attaining a height of six feet or more, with proportionately large sword-shaped leaves, and large pure white flowers marked with golden yellow on the outer petals. The flowers are about four inches in diameter, and very evanescent, but as they are numerous and quickly succeed each other, the plant retains its beauty for a long time, and is one of the most beautiful species ever imported. It is a native of Lord Howe's Island.—*B. S. Williams.*

FRUIT AND VEGETABLE GARDENING.

SEASONABLE HINTS.

What is called Botany, has a different meaning from what it had in old times. When the writer of this was a young horticultural student, he and some four or five others added botany, chemistry, some ancient and modern languages, and a few other outside matters to the ordinary garden instruction amidst the derision of the many score of other students, who assured us that they "could grow an apple tree, or raise a crop of potatoes just as well" as we could "for all that bother." It must be confessed that at that time our study of Botany did seem rather dry, and it involved great labor. We had to give eleven good hours of hard work a day, and as soon as this was over, and a hasty snatch of tea taken, we were off—five or six miles before sundown for wild plants, returning by midnight

for hard work the next day. Or it might be the eve before some holiday, when we would walk nearly all night, cut down a few branches for a bed for a few hours snatch of sleep, doing forty or fifty miles in some forty hours in search of botanical specimens. Our fellow-students had their laugh at us over their long clay pipes, and mugs of "half-and-half;" and even to us it did sometimes seem that they could "grow an apple tree or raise a crop of potatoes" as well as we. For at that time our "botany" consisted in little more than in collecting and drying plants, and in studying systems of classification by which we could arrange what we gathered. But even with that hard style of botany they could not raise even a crop of potatoes as well as we; and now that botany means a great deal more than it did then, there is no comparison in the actual cash gain to the one who knows some

thing of the science in fruit or vegetable culture over one who simply plods on.

Take for instance what is known of the transpiration of moisture by living plants—for it is such matters as these which now constitute the most inviting features of botanical study. If we take a dead and dry stick, say an inch or two thick, soak it thoroughly with water, and expose it to the full sun of a warm summer day, in a few hours it will be found that the moisture has all gone, and the stick is as dry as ever. Take a living branch of the same size, cut it from its parent tree, expose it side by side with the other, but though it will at once begin to shrink there will be some moisture left for several days to come. There is still some vital power left in the tree, and vital power resists evaporation. So in the winter time, a sudden burst of sunshine will raise the steam from a dead corn-stalk that may have been soaked by snow, and the stalk will soon feel warm; while a live green yucca leaf, or a branch of an evergreen is still cold as ever, and emits no steam. The vital power is equal to maintaining the plant's even temperature, whatever it may be, and simply throws off the water after the vital power has no more use for it.

Now the one who knows this, knows just how to manage a tree that has been injured by frost, or by transplanting. He never allows a twig or branch that is probably going to die, or is actually dead, to remain on the tree, because it helps to kill the living parts of the tree by evaporation. A living branch does not lose much water by evaporation, but a dead one does; and while it is, it is draining the tree of its juices and throwing into the atmosphere just what the living ones need so long as it remains on. So if he plant a tree at this season, and has the remotest idea that the twigs or top shoots will be killed he does not wait for the event, but cuts them off at once. Thousands of trees are saved every year by the one who knows this little of botany, while hundreds of thousands die every year under the hands of those who think they can raise potatoes or grow apple trees without "botherin' their heads about this stuff."

It is little use to attempt to grow vegetables well unless the soil is well treated. They may be and are grown on thin soils, not only at a great expense for manure, and at a great risk of dying out in a dry season, and of having the roots rotted out in a wet one. In those parts where the frost has not yet been severe enough to

injure the celery crop, it may have another earthing up. Care must be exercised in the operation not to let the earth get into the hearts of the plants, or they will be liable to rot. Where the plant has evidently finished its growth for the season, measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. Where large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be readily accessible. It always keeps best in the natural soil, where it is cool and moist and free from frost, and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips and other root crops, will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar, or buried in the soil, heads downward, to keep out the rain, or laid on their sides as thickly as they can be placed, nearly covered with soil, and then completely covered with corn stalks, litter or any protecting material. The main object in protecting all these kinds of vegetables is to prevent their growth by keeping them as cool as possible, and to prevent shriveling by keeping them moist. Cabbage plants, lettuce, and spinach sown last September, will require a slight protection. This is usually done by scattering straw loosely over. The intention is principally to check the frequent thawings, which draw the plants out of the ground.

In making new vegetable gardens, a south-east aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing too great a run of water in heavy rains. The plots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If water can be introduced, it is a great convenience.

Sometimes broccoli does not head before there is danger of frosts, especially if growing vigor-

ously. If taken up with small balls of earth, and set in a damp cellar, they will still perfect themselves.

Asparagus beds, after the tops have been cleared off, are better covered with litter or stable manure. The plants shoot easier for it next season.

When the ground becomes frozen, or no other work offers, preparation can always be made for advancing prospective work when it arrives.

Bean-poles may be made; and if the ends are charred, and then dipped in coal tar, the commonest material will be rendered nearly equal to the best cedar.

COMMUNICATIONS.

NOTES FROM NEW HAMPSHIRE.

BY JAMES M. HAYES, DOVER.

The fruit crop of 1879 is a surprise to all, there being much more than was expected. This is noticeable of apples, the great staple fruit of New England. Last year was produced one of the heaviest crops ever gathered; so much so that many fine lots of No. 1 apples were manufactured into cider, the price being so low that this was considered the best method of disposing of them. So it was not expected that the present being the "off-year" would give us but little fruit; hence when the Baldwins and Greenings in the Spring gave us a good bloom, we were surprised. The old varieties maintain their prestige,—the Baldwin, Rhode Island Greening, Roxbury Russet, and Porter still being the standards in the market. The Russian varieties over which there has been so much enthusiasm in northern localities fail, we think, to come up to the standard as a table fruit, but are excellent for cooking purposes. The pear crop is not so large as was anticipated when the trees bloomed, still there will be a fair crop. The bloom indicated a very large crop, but for some unexplained reason the fruit did not set heavy. There has come under my notice a Flemish Beauty pear tree, well loaded with smooth uncracked fruit, which in former years was worthless through cracking. The owner of the tree, soon after the pears set, sifted over the tree a mixture of equal parts of plaster and sulphur; to this he attributes his smooth, fine pears. Is this anything new, or is it well known to horticulturists? I do not remember of ever seeing any account of the use of sulphur to prevent pears cracking. It may be, however, that

some of the more experienced contributors of the MONTHLY, or you Mr. Editor, can tell us about this matter, or at least give an opinion of the efficacy of this remedy?

CATS AND PEAR TREES.

BY S. M., GERMANTOWN, PHILADELPHIA.

About fifty years ago, my residence was on 9th street, near that of Jacob Ballanger, a worthy citizen, referred to in the last number of the GARDENER'S MONTHLY, in the article headed "The Black Cat and Pear Tree." He was then quite noted for having in his small yard a pear tree which produced large crops of very beautiful and luscious butter pears. Perhaps I should never have thought again of the tree or its fruit, or even of my old neighbor, who has been deceased many years, if not reminded of them by the story of the black cat, which is wound up with the remark that "The philosophy of its produce was no doubt owing to his cutting the tap root in the burial of the cat." I have a number of thrifty-looking pear trees, but no fruit; cats plentiful, but no faith in the interment of them, black, white or gray. I should like very much to know that I could get such crops as my old friend J. B. displayed by amputating the tap roots.

[Never mind the cat,—but if pear trees have reached what ought to be a bearing age, and are yet of vigorous growth, cut some of the roots, and they will soon bear freely. We may have been indebted to the cat for this knowledge originally, as we were to a donkey for the benefit from stem-pruning the grape—"as it is written."—ED. G. M.]

NOTES ON THE SEASON AND FRUITS IN WESTERN PENNSYLVANIA.

BY A. HUIDEKOPER, MEADVILLE, PA.

1879 brought us here a late spring, and a summer characterized by a few hot days, and many cold nights when the mercury would fall below 50° under glass.

This produced on some vines a succession of fruiting and a Clairgeau tree on my premises has some very large matured pears below, and a small crop of fruit about a quarter grown on the upper branches. Crops generally have been satisfactory. Some buckwheat and corn got touched with the Fall frosts, and potatoes, very fine in some localities, were badly diseased and unsound in others. The Colorado beetle is much less dreaded than it was at first.

Summer fruits were very abundant in the market, furnishing at reasonable prices, strawberries, raspberries and blackberries, and the smaller wild fruits of the forest. Among the strawberries, Captain Jack, measuring four inches in circumference, and Colonel Cheeney measuring if taken the long way from six to eight inches, made their first appearance here, and certainly make a magnificent show on the table—while the market gardener may still cling to the Wilson, the producer for home use can certainly now do better in the way of selection as to what to grow.

The symmetrical top shape of the Captain Jack variety seems to conform more to one's ideal standard of form for the strawberry, than the coxcomb form of some of the larger kinds.

Peaches.—Last Winter the mercury several times reached a point of depression when theoretically the peach blossoms should have been killed, but though many of the better kinds of this fruit were killed, the trees which survived were full of blossoms; some of those which perished, blossomed out well and set fruit, and then dried up seemingly from lack of sap circulation. The dryness of the winter winds, and not the severity of the cold apparently did the injury. Hardy seedlings on the hills, though late in maturing, are bending with fruit.

The Foster Peach bore with me for the first time, and came hardly up to its primitive reputation. The fruit measuring about eight inches in circumference, was of a bright yellow and red color, showy and juicy, but somewhat stringy and coarse.

Apples.—With the great yield of last season, this should have been an off-year for this fruit, but our farmers at the Fairs make a very creditable show of all the leading varieties. Somewhat unevenly distributed, many of the trees are heavily freighted with fruit. The quantity would be amply sufficient were the apples all sound, but the codling moth smiles at the entomologist, and like the oil drillers goes on boring, irrespective of the final result on the market prices.

Pears.—In common with many beginners, years ago I felt discouraged in trying to grow pears, I think now that patience and potash are the true essentials of success. Keep the limbs strong by occasional shortening in, accomplishing at the same time symmetry of form; wash the trunks twice a year with lime, or wood ashes, or a dilution of the potash of the shops,

and the bark will be smooth, the growth vigorous, and the pear trees will be things of beauty, and a joy as long as they last. Blight will come sometimes despite all this, but the amateur does not need for family wants more than a dozen of well selected pear, and still fewer peach trees, and it is easy always to have a young tree coming on to supply the place of one that fails. Pear trees are often too prolific, and the fruit needs severe thinning, leaving no pears to come in contact or rub against each other. On a moderate sized Seckel Pear tree, last Spring, with me, from three to four out of every five pears were cut out soon after the fruit formed, yet even this seemingly thorough work was really not sufficient. One thousand and thirty-five Seckel pears by actual count were taken from this tree last month, leaving half a bushel of Lawrence pears on a top graft of the same. Some of my Clairgeaus this year weigh twenty ounces, which is almost California size, while Duchesse with a full crop yields specimens of three-quarters of a pound, and Winter Nelis of half a pound, which is a good size for the latter. The Sheldon is one of our nicest pears, the fruit resolving itself into sugar and juice on being eaten. Beurré Giffard is one the earliest to mature, bears well, is fair in quality, and though not a sweet pear it is juicy; and the smaller sized Tyson which follows it, though not juicy is sweet and well worth a place even in a small collection. The fruit of the Lawrence as it grows here is longer in shape than the drawing in Downing represents it to be, and when well matured is juicy, melting, and sweet with a flavor distinct and peculiar of its own.

Grapes.—The season was rather short for grapes; we get wagon loads of well-colored Concords brought here from the Lake Erie region, but here the Concord did not mature as well as usual; with me Isabella, Iona, Creveling, Massasoit, and Delaware ripened pretty well, the Creveling bearing very fully and ripening among the best.

I notice a late commendatory notice of the Telegraph grape. Here it fruited so thickly that the grapes as they enlarged would sometimes wedge each other from the stem, and I rejected it, classifying it among varieties that popular taste has outgrown. Allowance has however always to be made for results which come from varieties of soil and climate.

On the 4th of October we are still enjoying string beans, though we had a frost on the 26th

of September, when the mercury touched 32°, and frosts on the 10th, 21st and 25th, with mercury ranging from 38° down to 35°.

EDITORIAL NOTES.

PINE APPLES.—The Banana has become so popular that the Pine apple has fallen in proportion. They are not imported now to the extent they once were. The importation of Bananas is enormous.

PROPAGATING PEACH TREES.—We were recently informed of an enterprising nurseryman, who bought at a high figure, two plants of a new kind of peach tree. He has two thousand first-class plants to sell this fall.

PRICE OF GRAPES.—In Rochester, grapes were selling in September to dealers for two and a-half cents per pound. In St. Louis, at the same time Concords were selling at the same prices. Delawares and other choice kinds brought more. Marthas were in immense quantities and brought about five cents.

THE PHYLLOXERA IN CALIFORNIA.—This pest is making such inroads among the vineyards of California, where the European forms of grapes have hitherto done so well, that the leading vinegrowers are thinking of following the example of France, and of grafting their plants on the native American stock, which has been found to suffer less from the attacks of the little root pest.

DISTINGUISHING FRUITS.—Professor Beal read a very interesting paper, at Rochester, illustrating it by enlarged drawings, showing that much aid may be derived in distinguishing varieties of fruit by means of their petals, stamens and pistils.

PLUM CULTURE IN AMERICA.—It is well known that in consequence of the attacks of the curculio, plum culture once came near being abandoned. Ellwanger & Barry, and the late Dr. Hull, of Illinois, just kept the fruit in people's minds by persistent shaking of the trees. Others have followed the plan with a more or less partial success. Of late the quantities in the markets have increased. On a recent run through New York city, the writer saw them in Fulton Market as abundant as peaches. The dealers said they came from along the Hudson and central New York. Since then, visiting

Geneva, they were seen in great abundance. Mr. Cobleigh and Mr. S. D. Willard have especial success. Mr. Willard's orchard is chiefly of the celebrated Green Gage, Reine Claude de Bavay. They practice shaking the trees, but their method is different from any one we have met with before. They have two light frames, on which common muslin is spread. They look like huge barn doors, but they are very light. These are placed under the trees when the insects are to be shaken. Then they have a long handled sort of crutch; the arm-rest as we should say if it were a crutch, being nicely padded to prevent injury to the bark. This is pushed up and the branches jolted, and the "little turk" comes down, and is killed by the boy when it falls on the muslin. This is better than the old plan of striking the trunk. It has to be done every day, and it would be as well twice a day. Mr. Cobleigh finds it takes two hours and a-half to shake 1600 trees. Mr. Willard's boy goes slower; but still it is profitable for those who wish to raise plums. It may be that there are some who may yet yearn for a once-for-all method by which they can give an hour or two a year, and then get a full crop of plums. Of course we all wish them much joy in their hopes; but in the mean time let us give thanks to men who like Willard, Cobleigh and others are placing plums at small cost within the reach of all.

THE BRIGHTON GRAPE.—It is not easy to form an opinion of the true value of a fruit from its merely positive character; and hence bunches seen at a show, and tasted in an editorial office, seldom tell much of value. Comparisons are what we want. The Brighton Grape has often been seen under such conditions by the writer; but all he could say was that it seemed a very good grape. Recently he had the chance to examine it among many score of varieties on the grounds of Mr. Cobleigh, near Geneva, and was surprised to find that it was the best flavored to his taste of any in the collection. All its other characters compared favorably. As seen and eaten there, he would put it at the head of table grapes.

BLACKBERRIES.—Large tracts are not confined to the East. There is one of thirty acres at Napa, California. The yield per acre is two and a-half tons.

THE CALIFORNIA ELDER-BERRY.—Mr. W. A. Sanders tells the *Pacific Rural Press*: Mrs.

Dusy is making most excellent jelly from the abundance of elderberries. Indeed, when the superiority of elderberries for jelly-making shall become known, they will be largely used for that purpose; but these and all other fruits must in time give way to that king of all jelly-making fruits—the Jujube, from which that perfection of all jellies, the jujube-paste of commerce is made.

CUTTING OUT OLD RASPBERRY CANES.—We once believed and have taught, that raspberries were benefitted by cutting out the old canes soon after they had borne fruit; but the experience of later years leads us to the conclusion that little if any benefit results, and it will be as well to leave the task to seasons of leisure.

PEACHES IN THE WEST.—Peaches having failed in the west, were supplied from the east this season, bringing about \$2 per bushel in the leading markets.

GATHERING GRAPES.—The Californians have invented a ring to be worn on the fore finger of the right hand, to which a little short blade is attached so that with but one hand the bunch can be at once cut from the vine.

THE GREGG RASPBERRY.—We see it stated that "Thomas Meehan says it is fifty per cent. larger than the Mammoth Cluster." We have no idea that Thomas Meehan ever said anything of the kind. In the first place he would not probably have spoken by "per cents," but have used the plain old Saxon "half as large again," or, "two-thirds" the size of the Mammoth Cluster. But then, again, we do not believe that Thomas Meehan or any other person ever saw a Gregg as large as these figures convey the impression. We believe this variety is generally larger than any other kind yet known, and the venders should be satisfied with this praise.

CURCULIO PROOF PLUMS.—We often have plums shown to us in perfect condition, and yet with curculio marks on them to prove that a variety is "curculio-proof." But this proves nothing. It is not the cutting of the skin of the fruit, but the egg which the insect deposits, that causes it to rot; or rather the insect which comes from the egg. Often enough, the insect makes an attempt at oviposition, and then from some fright does not complete the job; and it is only in such cases that we have "curculio-proof." There is no plum proof against premature decay when once it has "a worm in it."

THE THWACK RASPBERRY.—Mr. Ohmer, of

Dayton, Ohio, finds this a valuable variety for shipping long distances.

THE GREGG RASPBERRY.—This maintained last year its previous promise to be the best Black Cap raised, so far.

RASPBERRY, QUEEN OF THE MARKET.—This is claimed to be one of the best red raspberries for shipping, and is claimed to be "fully equal to the Hornet in fine appearance, color, size, and quality."

THE LAWRENCE PEAR.—This well-known and popular kind, is found to be a very profitable market fruit by Mr. Ohmer, of Dayton.

THE CODLING MOTH IN AUSTRALIA.—Advices from Victoria show the injuries to apple culture to be as great there as in America.

MADAME GRANGER APPLE.—This new French apple is said to be very large. It is remarkable for its irregularity, being ribbed and ridged like some tomatoes.

CRANBERRY CULTURE.—Mr. F. Trowbridge issues occasionally an excellent practical treatise on the cranberry culture. A new edition with the latest news has just appeared.

THE ST. PATRICK POTATO.—The Irish potato, St. Patrick, sent out by Peter Henderson last year, was very successful with John S. Twells, of Woodbury, N. J., last year. From one pound of seeds he obtained "two baskets" of produce, or "500 bushels to the acre, if it could be done in the same proportion," which, however, it seldom is. They were not as good in quality as the Early Rose.

SCRAPS AND QUERIES.

PROGRESSIVE FRUITS.—The correspondent of the *New Jersey Liberal Press*, to whom we referred in our last, now sends us the following additional note. As he lives in a vicinity crowded by those who love the plain language, he doubtless hopes to be forgiven: "Thanks for the good hearty laugh at the notice of my strawberry complaint in your MONTHLY, page 303. 'And thus growleth' he not for the progress, development or improvement in new fruits, but the unfounded swindling puffs about new and wonderful berries, etc., which the vender must know are false, and we ignorant—per force—buyers must wait for one year or more to find it out; by that time they are honest enough to acknowl-

edge the error (plants all sold I presume first) but, they now have something really good, very large, just the thing, etc.; price high, but not too high for such a treasure; so it goes. Even temporary King Sharpless, is named in Moore's newspaper, New York, the Shapeless."

STATISTICS OF FRUIT CULTURE.—Mr. J. R. Dodge, of the Census Bureau, 1228 N Street, Washington, D. C., sends us the following letter, which we print hoping that those who may be interested in the success of Mr. Dodge's excellent endeavors, will aid him by suggestion: *Department of the Interior—Census Office—Washington, D. C.*—"I am preparing a circular of inquiry, as special agent under the Superintendent of the Census for the collection of Agricultural Statistics, relative to fruit growing, designed to be sent to experienced pomologists in every section of the country, and desire suggestions from you as to inquiries desirable in such a circular, such as the distribution of fruits, proportion of area occupied by each, preferred varieties in each locality, soil and situation favorable to growth and productiveness, soil preparation, culture and treatment, age of bearing, average rate of production, diseases and remedies, etc. It will afford an opportunity never before presented of obtaining a universal expression of experience and general collection of facts upon disputed points in practical pomology that will be of immense service. As other industries will be exhaustively studied and reported, I desire also, to procure a collection of facts and experiences worthy of the age and of the intelligence and skill of American fruit growers. Please suggest as many specific points of inquiry, and with as much minuteness as you choose, under the above or other heads, as may at once occur to you, and oblige."

BLODGETT'S MISS PERCIVAL PEACH.—With some fine specimens of this excellent, juicy, late, white, free-stone peach, we have the following memorandum from Mr. Blodgett: "I send you a sample herewith of my seedling No. 1, Miss Percival, a white, melting peach that has now borne for ten years without failing in quantity and quality. My general crop of peaches is larger this year than the tenth in succession of uniform crops. There are eight trees heavily laden with yellow clings and free-stones yet to ripen, though none this year will be later than October 10th. Not one of the thirty trees of my collection has failed to produce a crop every

year, except the finest yellow free-stone, No. 2, which broke to pieces with its heavy crop in a September storm, two years ago. The samples I send you are only an average; and of the entire number of seedlings, all are equally large and tender when ripe, except the Willow Peaches, white melting free-stone, of small size, very sweet, and extremely profuse bearers."

THE "JESSIE" GRAPE.—F. W. Loudon, Janesville, Wis., sends a bunch of a seedling grape named Jessie, which he says is a cross between Delaware and Diana. It has somewhat the look of Diana, but perhaps of a better flavor, and this is saying a good deal, for the Diana is yet one of our most popular varieties, though it has had many attempts at rivalry during late years.

WHITE-WASHING TREES.—F. B., Brooklyn, New York, writes: "I see you recommend white-washing the stems of fruit trees. I was about to order mine done so, when I happened to read in a standard work on horticulture that it would kill the trees, and there was a long article to show that trees so treated must of a certainty die, because the white-wash stopped up the pores of the bark through which the trees breathed. I have sufficient confidence in the teachings of the GARDENER'S MONTHLY to have my trees washed this Winter, but I cannot help calling your attention to the different teachings of science and practice."

[There is no difference between science and practice, but the teacher of science referred to did not happen to know exactly what he was writing about, and this is a very common misfortune. Trees do "breathe" if absorbing the gases of the atmosphere through their dermal tissue can be called "breathing," but this is only when such tissue is young. If we were to cover leaves and the young branches with white-wash, it is likely the trees would suffer. But old branches make a different condition. The tree itself throws old bark off as soon as it can. There is no "breathing" through this old bark, and you may safely help the tree to get rid of it. The work you refer to must be very old. Such statements were frequently met with before the GARDENER'S MONTHLY came into existence, and amongst the first sneers at our magazine came some because we showed that the old "Dutch" practice of white-washing trees, was not to be classed with planting under the "signs" of the moon. No good cultivator

objects to white-washing the trunks and main branches of trees in these days.—ED. G. M.]

A NEW PLUM.—C. B., Hightstown, N. J., writes: "We send you by mail a small box of plums of the Chickasaw family we think, also one Miner, marked so on the wrapper, to test. The plums are nearly all too hard yet; let them ripen before testing. This plum has been grown here for years, and is as near curculio-proof as possible, much more so than Wild Goose; it bears enormous crops of fruit, and when fully ripe is of very fair quality; our object in sending this is for you to compare it with Bassett's American, which we presume you have seen and tested; we never have, and would like to know if it is any better than the one we send; there are only two points it can excel it in, are size and flavor, and this is what we wish you to decide. It was brought to our notice some years ago; we never have sent it out, but have seen none of its class yet that excels it in every quality."

[This is a very pretty plum, the color being deep crimson. The flavor was very good; indeed it is the first native plum brought to our attention that it seems fair to compare with some of the good plums of the foreign race. Whether these plums were exceptionally sweet from some unusual cause we cannot decide, for plums will often change their general character for better or for worse when kept some time. We may at least say if it is always as good as those before us it is a good addition to our list of native

plums. It is much darker than Bassett's Plum, and about equal to Bassett's in size. As to comparative flavor, we have none at hand to compare it with.—ED. G. M.]

SEEDLING GRAPE.—Daniel Shelley, Cumberland Co., Pa., sends a sample of a "seedling grape" which was also on exhibition at the State Fair. We can only say it was of a Catawba color, intermediate in size between Delaware and Catawba, and of very good flavor. It is but justice however to say that very good seedling grapes are now so numerous, that no editor nor any committee can decide from a mere bunch the true value of a grape.

THE WAGER PEACH.—A. R. P., Honeoye, N. Y., writes: "I send you this day by express, samples of Wager Peach, which on account of over-loaded trees, are not quite as large as common. They are noted for their hardiness as well as their sure-bearing qualities, having been grown in this section for upwards of twenty-five years. One orchard near us having borne large crops when all other varieties have failed."

[These were of middle size, and of fair flavor. If these, and the merits Mr. Pennell claims for it, were all its recommendations, we hardly know whether there may not be some others that would successfully compete with it; but it has in addition a beautiful golden yellow tint, more like that of an Apricot than an ordinary peach; and this beauty is all in its favor.—ED. G. M.]

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

CURL IN THE PEACH.

BY PROF. T. J. BURRILL CHAMPAGNE, ILLS.

Read before the Illinois Horticultural Society.

This disease was more than ordinarily noticeable during the early part of the past Summer. Afflicted trees present a most pitiful appearance; their young leaves were distorted and swollen, to the touch rigid and brittle, to the eye discolored or miscolored. Sometimes particular branches alone showed the destroyers' attack,

and often certain trees were affected in the midst of healthy ones of the same variety.

The cause of this malady has been assigned to many and widely different agencies; but insects of one kind or other have had most often to bear the obloquy of the mischief. Now it is an aphid, long-legged and long-beaked; now a thrips, running and jumping and sucking, by turns; now it is a mite too small to be noticed; now a plant-bug too ill-smelling to be unnoticed. Others have imagined the cause to be in the constitution of the tree, or the food it had or did not have, or in the conditions of training and culture. It

is true a well-known plant-louse (*Aphis Persicae*) does cause the leaves of peaches and those of other stone-fruits to twist and curl by its punctures; but the appearance is distinct enough from that under discussion. The leaves infested by insects keep their green color, are shorter rolled and have not the swollen, shining appearance as in the disease of which we speak. The true cause of the latter has been known for some years to be a parasitic fungus, whose mycelium or vegetating threads penetrate and ramify through and through the affected leaves and produce its fruit (spores) in a thin, whitish, powdery stratum over the foliæ surfaces. If a little of the white coating of a diseased leaf is removed upon the point of a knife-blade and placed in a drop of water under a compound microscope, numerous thin-walled cells of divers forms may be seen. Among them some, often very many, larger than the others may be observed having just about the outline of a track made in the mud by a flat-footed boy, the toes not appearing. Through the transparent walls are to be seen several small oval bodies, which he who is acquainted with such things quickly pronounces spores. Our foot-shaped cells are spore-sacks or sporangia. There are plenty of them, and if the disease does not spread rapidly it is not from the want of fertility and productiveness of the parasite.

The name very appropriately given the fungus is *Ascomyces deformans*.

So far nothing new has been said, though botanists have not usually made out the penetrating mycelium in the leaf-tissues and have described the fruit production on the surface as an anomaly. Some investigations by the writer have now to be added and a remedy proposed.

When the leaves are making their appearance in Spring-time close inspection shows that they are diseased when they issue from the buds, and careful examinations of their sections under the microscope reveal the presence of the parasitic filaments growing among and through the young leaf-cells as roots grow in soil. The young leaf is affected throughout or only in a given portion of its area. As it expands by growth the parasite is carried along and finally produces the observed deformities correspondingly over the whole or only a part of its surface. The disease then is in the buds, and as the stem or axis on which the leaves are borne constitutes a part of the bud it might be inferred that this, too, is subject to the invasion of the enemy. This is the

case. The young bark of a diseased twig is as completely filled with the threads of the fungus as the leaves themselves. It, too, is distorted in its growth, thrown into ridges and swellings and blister-like excrescences, and when not prevented by the firmness of the wood curls like the leaves. Diseased leaves finally die, wither, and drop off; diseased twigs when very badly affected die also, otherwise they retain the marks of the destroyer throughout the season. After the time of the production of spores is passed, the fungus, though preserving its vitality, appears to become dormant, and the injured but surviving twig may now send out healthy leaves from newly-formed buds. Hence it is that at one time the leaves of a tree may be blistered and distorted, at a later period fresh and sound. The old leaves do not recover, new ones take their places.

If, however, during the latter part of the summer, or at any time through the Winter, the diseased bark of young limbs be properly examined the fungus threads in a living state may be found. This is a most important contribution to our knowledge of the natural history of the parasite, and at once suggests a feasible plan of warfare. You have no doubt already anticipated this plan and are wondering if it will succeed. Select by close examination in Winter the portions bearing the cause of the disease and prune them away. This can be done with much certainty as to the results. There is no necessity of the gift of prophecy to predict what trees and what particular branches will show the disease in the leaves to be put forth the next Spring. An examination now of the one-year-old limbs tells the story.

It is still possible that infection may come from a foreign source, as the germination and development of the spore has not been traced, but the slow spreading of the disease leads us to hope that danger from this source is not very great. If the perennial mycelium is destroyed there is much to indicate a sure victory over the disease. Sometimes the amount of necessary pruning would be very severe, but only in trees so badly infested with the preying fungus that one can cut without much compunction of conscience. More often very little use of the knife will suffice, and this all upon limbs of the last season's growth. It would assuredly be well to burn the severed branches, but their simple removal, even though thrown upon the ground beneath the tree, may and most probably would be sufficient.

THE ROSE SLUG, (*SELANDRIA ROSÆ*, HARRIS).

BY MISS MARY C. MURTFELDT, KIRKWOOD, MO.

The rose is undoubtedly beset by a greater variety of insect enemies than any other garden shrub. Among these pests the well known and wide-spread "slug" has a "bad eminence." This insect was first described and named by Dr. Harris, in his *Insects Injurious to Vegetation*, in which account the statements concerning it are mainly correct, but the Doctor omits certain interesting particulars in its history and makes one serious mistake.

With us, in the latitude of central Missouri, the parent flies appear as early as the first of May, when they may be observed in considerable numbers on the rose bushes, where their sluggish habits admit of their easy capture. They are about one-fifth of an inch in length, of a glossy black color, and have the wings closely folded when at rest. The females soon begin the process of oviposition. With their saw-like ovipositors they pierce the edges of the leaves and force their eggs toward the tips of the serrations under the cuticle on the under side. The egg is circular, about one-twentieth of an inch in diameter, and so flat at first as to be imperceptible except upon the closest scrutiny. It hatches in eight or nine days, and before the larva escapes, swells considerably, appearing like a minute blister on the under side of the leaf, within which the coiled embryo is distinctly visible. The young slug upon emerging is one-tenth of an inch in length, and about the diameter of No. 30 spool cotton, the round, tawny-yellow head being the broadest part. The color is greenish white with a dark-green vesicular line as soon as it begins to feed. When full grown it is rather more than one-third of an inch long, broadest at the thoracic joints, the color being a translucent dull yellow, shading to green on the back. It is not in the least slimy, as are some closely allied species, but on the contrary has a velvety surface. It feeds at night upon the green tissue of the upper surface of the leaf, and rests during the day hidden upon the under side. It attains its growth in fourteen or fifteen days, molting meanwhile four times. After the last molt it ceases to feed, acquires a more opaque color, and soon drops or crawls to the ground into which it burrows to the depth of an inch or two, and encloses itself in a frail, oval cell formed from particles of earth cemented with a viscid excretion. "The slugs

having finished their transformations," Harris proceeds to say, "and changed to flies within their cells, they come out of the ground early in August, and lay their eggs for a second brood of young. These in turn perform their appointed work of destruction in the Autumn; they then go into the ground, make their earthen cells, remain therein throughout the Winter, and appear in the winged form in the following Spring and Summer."

This is the point where Dr. Harris is in error, unless the rose slug of Massachusetts is a different species from the one from which we suffer, which, as the two insects seem to agree in all other particulars is scarcely supposable. Having watched the insect through its transformations for several successive years, I am convinced that it is not double-brooded with us, and as our season is much longer than Summer in Massachusetts, it stands to reason that it is not double-brooded in more northern latitudes.

Dr. Harris, in making this statement probably reasoned from analogy, as the cherry slug and several other closely allied species are double-brooded; but it is not always safe to reason thus in the case of insects, as there is often great diversity of habit among species nearly related.

As Dr. Harris's mistake has been followed by all the subsequent writers on the subject, it occurred to me that it would only be the part of kindness to rose culturists to undeceive them, or rather to reassure them on this point. There is an adage to the effect that "it is not necessary to paint a certain personage blacker than he is," which holds good in the present case. It is certainly bad enough to have to contend with one brood of this destructive pest, without the discouraging information that almost as soon as the Spring brood disappears the Autumn brood will hatch. Therefore, let all who entertain such fears take heart. If the slugs can be kept from blighting the foliage during the months of May and June, no further trouble need be apprehended from them until the following year, as they remain unchanged within their cells for more than ten months. Although the individual larva feeds only for about two weeks, yet as the flies live and continue to lay their eggs for some time, the slug season lasts for nearly a month, and if the insects are neglected at the end of that time the foliage of the infested plants, with the green tissue eaten in large irregular patches from the upper surface, will appear as though scorched with fire. Bourbon, Tea, and other

perpetual roses naturally suffer most in this ordeal.

The rose slug has a number of natural enemies, such as ichneumon parasites, lady-bird larvæ, cannibal bugs, spiders, and the like, but none of these are, as yet, equal to the task of keeping it sufficiently in check.

The most thoroughly effectual remedy is whale-oil soap, in the proportions of one pound of soap to eight gallons of water. This should be applied at night, the plants being thoroughly drenched. Three applications, at intervals of two or three days will almost, if not quite exterminate the pest. Powdered White Hellebore and the Persian Insect Powder dusted on the plants while the dew is on them are also excellent remedies.

REMARKABLE DIFFERENCE IN THE CLIMATE OF PLACES SITUATED UNDER THE SAME LATITUDE.

BY F. W. POPPEY, ORANGE, N. J.

The climate of the different parts of the world has often been guessed at, even by men of some scientific knowledge, according to the latitude in which the country in question was situated, until Humboldt showed how independently of latitude the isothermal lines run over the globe. And even a knowledge of this is not sufficient to form a correct and reliable idea of the climate of a given locality, especially not with respect to the life of plants growing or possible of being grown there. The elevation above the sea, the exposition, the hygrometrical condition of the atmosphere, the origin and prevalence of winds at various seasons, have all something to do with the make-up of the sum total of meteorological conditions constituting the climate. The most remarkable and extreme differences in this respect are observed not only between places in Europe and America, but even on one and the same continent. The climate of Norway, for instance, is mild, though there are large tracts covered with eternal snow and ice. When in the interior near Dovre, in the neighborhood of Schneehutten, there is a temperature of about 47° below zero; there is at the sea coast near Hardanger, 60° N. L., hardly 32°, and this is perhaps the most northern point on which the grape ripens in the open air, and consequently many other less tender fruits, which far surpass in flavor those of the same kind grown in warmer or more southern countries. At Saetensdale, under the 59th degree North Latitude, one thousand feet above the sea, the tempera-

ture rises in Summer, to 102° F. in the shade, and during the Winter of '73-'74, there was very little snow, in some places none. Here the Summers are shorter than in more southern latitudes, but the days are longer, and the sun setting on the 21st of June, at 9.23 P. M., and rising at 2.40 A. M.; but without the Gulf stream washing the shores, the sun would not have that effect of bringing fruits and plants to perfection in a latitude where, in America, all vegetation is at an end. Near Christiana, every peasant or farmer has his orchard. Even at Drondhjem, five degrees and a-half still further north, Juglans regia ripens its fruits; besides pears, cherries, and of course apples, etc., etc. Here they grow wheat, whilst in the same latitude in America, near the Hudson Bay, no human habitation is possible, and in Siberia the ground thaws only to the depth of two feet. Trees in full bloom at Rome, Italy, in January, do not open their buds at Boston till May, and those at Upsala, in Sweden, bloom together with those at New York, the latitude of Naples. In Scotland, where no fruit tree thrives, the Winters are milder, than those in Hungary, and still greater is the difference between the latter country, where melons, grapes, and tobacco, come to high perfection, and the Faroe Islands where neither a beech nor an oak will grow. At Ranensford, Norway, they raise rye, whilst under the same latitude in America, ice and snow prevail nearly all through the Summer. Texas is situated in the same latitude as northern Africa, where the inhabitants almost subsist, with their horses and camels, on bananas and dates, eaten in the shades of Palms; none of such trees will grow in Texas, nor will the Blue Gum, Eucalyptus globulus. At San Francisco, exactly in the same latitude with Baltimore, no peach, no grape, nor even a strawberry will ripen. The only trees there possible in gardens and parks would not survive a single season in or around Baltimore, and whilst in the Eastern States, Abies excelsa is planted as a protection against the cold winds, it will not grow near San Francisco, except being protected and sheltered against the wind. In Baltimore, deciduous trees form the main stock of the plantation in parks and gardens, and evergreens are the exception; in San Francisco evergreens are the only trees possible, to the total exclusion of deciduous ones. In Mexico, all fruits and plants known, will grow on the same line of latitude, but on different elevations over the sea.

EDITORIAL NOTES.

FULL OF BUGS.—It is said that the Entomological cabinet of Mr. Andrew S. Fuller, contains eight thousand species of beetles alone. Mr. Fuller estimates there are over 100,000 species of insects in the United States. A gentleman who visited his collection says: "Here Mr. Fuller sat down at the table and began to write. The reporter was about to leave when the entomologist said: 'I have given you the little I know concerning one beetle, but to-day there is not one hundred of our North American insects whose true history is well known. There is room for a thousand active young men to distinguish themselves in this direction. The pursuit is most fascinating, and no man who has once entered it will ever wish to turn back. Just to give you an idea. One man visited Florida during the Winter and brought back over 1,500 new species of bugs. Another man broke down the bug market in one specialty. He found under a dead Palmetto fan hundreds of bugs that were previously rated at seventy-five dollars apiece.'"

ABIES MENZIESII.—Dr. Englemann concludes that this name must be wholly dropped. The "Pacific Menziesii" is Picea Sitchensis; and the "Colorado Menziesii" is Picea pungens.

PICEA AND ABIES.—As already noticed in our magazine, these have been confused. What we know as Abies should be Picea, and what are Picea should be Abies. The Firs are the Abies, and the Spruces Picea. About this Mr. Lemmon has the following in the *Pacific Rural Press*:

"Dr. George Engelmann, of St. Louis, the closest student of our trees in America, has just published an exhaustive description of the American Firs, in which he says: 'I follow Link in his name, definition and limitation of the genus Abies, which seems to be a very natural one, comprising the Silver and Balsam Firs.'

The synonym Picea is the older name, and enjoys the Linnæan prestige, but is contrary to classical (see Pliny and others), and to philological authority. The name Abies is generally adopted in Europe, while Picea, heretofore principally used in England, is now being abandoned.

Picea is the pitch tree, and properly designates the Spruces. Tournefort, the elder De Candolle, Gray and others, comprise under the name Abies both the Spruces and Firs; 'but,' the

Doctor declares emphatically, 'the generic distinctions between them are abundant, and based on floral and fruit characters, as well as upon the leaf anatomy.'

Spruce Family.—The Spruces are distinguished from the Firs by their depending cones growing from any of the limbs, with persistent scales and bracts, and, generally, by their scattered limbs and leaves; also by microscopic anatomy, as shown by Engelmann. They comprise two genera, Picea and Tsuga forming the second and third genera of the Abietinæ, as stated, differing from each other by but few characters detected at a distance; five species in California.

Second genus, Picea, from pix, 'pitch.' The true spruce. Leaves four-sided, and generally scattered all round the long twigs, leaving, when they fall, the foot-stalk, persistent, ligenous and prominent. Bracts concealed beneath the cone-scales."

SCRAPS AND QUERIES.

BOTANIC GARDENS.—A Philadelphia correspondent has been writing to the *American Cultivator* at Boston, complaining of a suggestion that the Cambridge Botanical Garden is superior, and names the Missouri Botanic Garden, the Bartram Gardens, and Fairmount Park for comparison. The *Cultivator* seems to refer to us for decision. We can only say that the Cambridge Garden is a long way ahead of anything in this country. The Bartram Gardens have little to boast of but a few valuable old trees. Fairmount Park has done wonderfully well considering how rarely a body under political influences comes to much. Mr. Shaw's garden, considering that it is the work of one man's lifetime, is a rare monument of success. It could hardly be expected to compete with an old institution like Cambridge. In short, Cambridge well deserves the honor of being the best botanic garden in the United States.

COLEUS.—Mrs. D. M. A. asks: "Will you please give in the MONTHLY, the derivation and pronunciation of Coleus, and how to form the singular and plural?" [It is an ancient Latin word, signifying a peculiar form of bag or purse, and to which the unexpanded flower has some supposed resemblance. It is pronounced as if written, coal-yus, the e being of very short sound. Gramatically, if you were writing a treatise on Latin, or conversing in the Latin tongue, you would make *coleus* for the singular and *colei* for

the plural. But *Coleus* has been made a part of the English language by its every day use, and it will therefore have to follow English grammatical rules. It will therefore be quite safe, when talking to your neighbor to say *Coleus* for the singular, and *Coleuses* for the plural. There is an attempt in some quarters to carry the Latin forms of plurals with the Latin words, after they have come into common use as English ones; and in this case *Colei* would be used in every day language,—but with no more reason than there would be for using the various forms which the Latin noun goes through in forming its cases.

THE "RURAL" PLANT.—Mrs. D. A., East Brookfield, Mass., says: "I have just read Mr. A. C.'s questions on page 293, Oct. number of the MONTHLY. His shrub-vine acts exactly like a Variegated Snowberry that I received from you in 1871; it never showed the least tendency to climb till this season; it is identical with his in every particular given; the leaf is round not oblong, like *Lonicera reticulata*; fragrantissima is unknown to me. Eight years ago I sent you five dollars, and received a fine package of shrubs. Have now a purple-leaved Beech, a fine Magnolia, a *Lonicera*, and the above named Snow-berry."

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 6.

BY JACQUES.

Protoplasm.—Everybody interested in science will find Professor Allman's inauguration speech before the British Association, essential to a knowledge of the present positions of science. It runs through many of the larger periodicals, and notably in Appleton's *Popular Science Monthly* for October.

Aunts and Ants.—One might suppose a connection between the authors of Pinafore and Sir John Lubbock; the one rings the changes on sisters, cousins and aunts, and the other brings up with his observations on ants only, both to the great satisfaction of the public.

"*Remains to be seen*," is a favorite expression of our friends, who make newspapers so interesting now-a-days. The phrase is a good one, and recommended to every man or woman who places a seed in the ground.

Oliver Wendell Holmes calls odors and flavors of fruits and flowers, the moral characters of plants.

Philosophers and others have long been looking out to discover reason and reflection in the brute creation, but seem to find neither to any great extent, except in ants. Sir John Lubbock and Dr. McCook find much to amuse in the study of those insects—the harvesters and the honey-makers, etc.; but no animal has yet been found to exhibit true concerted action, or to express by external signs, distinct intellectual percep-

tions—processes of which all men are nominally capable. Apes, like dogs and cats, warm themselves with pleasure at deserted fires; yet though they see wood burning, and other wood lying by, though they have arms and hands as we have, and the same sentient faculties, they have never, so far as known, been recorded to add fuel to maintain their comfort.

Mosquitoes.—The great inventor Siemens once told the writer he knew of no substance but that had its enemy, and he expected his gutta percha cables would be attacked in time. We animals—men—have a sad annoyance in the mosquito, which conquers even the most learned scientists, as we find by the proceedings of a committee of the American Association for the Advancement of Science. The members encamped at Fort Wool, Virginia, where in their own words they say, "The mosquitoes came by millions; the air was filled with them, and the noise of their busy wings sounded like an approaching storm. No one slept, that was impossible." So the scientific men gave it up and decamped.

The *Canada Horticulturist* prints an eulogium on "insect powder," as a great desideratum in destroying the pests of the greenhouse. When shall we have a powder to kill the human pests?

Civil service reform at the Park.—"Sir, I am glad to see sometimes in your notes that you have an eye to the park affairs. A 'guard' so-called, is a man who has great difficulty to know how to pass his time, and what he shall do with his arms and legs; weary is the day to this appointee, and if he were examined beforehand to dis-

cover whether he knew a thistle for instance, or two or three more weeds, especially when they are so ready to drop seeds all over the park, and then instructed to pull and destroy the noxious plants, he might find a delightful occupation, and a change from his ennui.—*One of the people*."

Statistics.—There are a few persons who don't like statistics,—we propose to afflict them. There are over thirteen million cows in the United States, or a cow to every five persons throughout America; three thousand factories for making cheese, or three hundred and fifty million of dollars for cheese and butter. But what shall we say to the amount of perfumery used by people of cultivated or uncultivated noses. It can only be understood by glancing over the figures relating to this great scented subject. Europe and British India alone consume about 150,000 gallons of handkerchief perfume yearly; the English revenue from French eau de Cologne of itself is \$40,000 annually, and the total revenue of England from other imported perfumes is estimated at \$200,000 each year. There is one great perfume distillery at Cannes, in France, which uses yearly about 100,000 pounds of acacia flowers, 140,000 pounds of rare flower leaves, 32,000 pounds of jasmine blossoms, and 20,000 pounds of tuberose blossoms, together with an immense quantity of other material used for perfume. The value of perfumes to countries adapted to their production may be gathered from the following estimate of their growth and value per acre: An acre of jasmine plants, 80,000 in number, will produce 5,000 pounds of flowers, valued at \$1,250; an acre of rose trees, 10,000 in number, will yield 2,000 pounds of flowers, worth \$375; 300 orange trees, growing on an acre, will yield, at ten years of age, 2,000 pounds of flowers, valued at \$250; an acre of violets, producing 1,600 pounds of flowers, is worth \$800; an acre of cassia trees of about 300, will at three years of age, yield 900 pounds of flowers, worth \$450; an acre of geranium plants will yield something over 2,000 ounces distilled attar, worth \$4,000; an acre of lavender, giving over 3,500 pounds of flowers for distillation, will yield a value of \$1,500. But how small all this sounds after a statistic or two from Washington, about tobacco culture. In 1770 the quantity sent out of the country was 22,000,000 pounds. In 1877 the total amount exported and manufactured was over 463,000,000, the whole crop being estimated at 490,000,000 lbs. The culture

is extending to new grounds; even Pennsylvania finds it succeed. To continue a little, we answer the query of a correspondent: An acre of good land at the South, well tilled, will yield a bale of cotton weighing 450 lbs, worth \$45—possibly \$55. Of whisky statistics it is unnecessary to give any calculation, as no really good gardener is ever produced under its influence.

It is confidently stated that the railroads in the United States reach the length of ninety thousand miles, and that they require forty millions of railroad ties yearly. What resources are there to permanently supply this and an increasing demand? Iron is proposed as a substitute. Straw paste-boards was once suggested.

The polishing stone called tripoli, is composed of fragmentary shells. Similar infusorial formations are found in several places, Bohemia, etc. The layer at Bilin is fourteen feet thick, and Ehrenberg has estimated that it contains 41,000,000,000 shells in every cubic inch, while all are united and imbedded by an amorphous silicic substance forming compact masses of rock. Similar deposits appear in many parts of the world.

Education.—It may safely be said that the attention of thinking American people, if not of all thinking men, is now turning to the fact that the knowledge so-called of the old schools and universities will not compare with a knowledge of the useful arts. A young man who is a Greek scholar after years of study, is not the equal in the practical uses of life of one who understands the steam engine, or can speak French or German. A late work entitled, 1st "Addresses, Political Education," and 2nd, "Scientific lectures by Sir John Lubbock," the political economist and naturalist, is full of thoughts on these topics. We should surely endeavor, he says, to give children some information in reference to this beautiful world in which we live, the commoner plants of our woods and fields, some explanation of the commoner and ordinary phenomena of nature, the causes of Summer and Winter, of the phases of the moon, the nature of the sun and stars, the properties of air and water, some elementary knowledge of light and heat, of the rudiments of mechanics, etc. How many leaving school know anything of horticulture?

A new and very nutritious plant, a native of Mexico, has lately been introduced into Egypt, and proves a great acquisition. It attains the height of thirteen to sixteen feet; so rapid is its growth, that it grows one foot in four days,

and is much relished by horses. Its botanical name is *Reana* (*Euchloena*) *luxurians*. It succeeds in the south of Europe.

Avocation for Women.—Attention is being turned by a portion of the press to the topic of gardening as a vocation for women. So be it; and yet it is as well to intimate sometimes that it need not be taken up by them before there is a sufficient supply of good nurses; that is one at least of her proper vocations, but it is too generally shunned as too laborious and confining.

THE FLORA OF THE STATE OF TEXAS.

TRANSLATED FOR THE GARDENER'S MONTHLY FROM THE "ANZIGER DES WESTENS."

NO. III.

The valleys of the rivers of the middle zone are characteristically different from each other, as far as their vegetation goes. Hence an old inhabitant of the State of Texas can very often tell from the vegetation along a creek to which system of rivers that creek belongs.

Of all the Texas rivers, the shores of the Brazos are most densely wooded, there being a breadth of about thirty miles of almost impenetrable woods on either side. The tallest and most striking trees in these woods are: *Sycamore*, *Platanus occidentalis*, *Cottonwood*, *Populus angulata*, two kinds of *Walnut*, *Juglans* and *Carya aquatica*, several *Oaks*,—*O. rubra*, *cinerea*, *coccinea*, *virens*,—*Elms* and *Hackberries*. Amongst the elms we find the prickly one. Its trunk and branches bear thorns three to six inches long, attached horizontally, very sharp, very smooth, and very tough. Most of the trees are covered with *Tillandsia usneoides*, with gigantic grape vines, *Vitis labrusca*, and with *Trumpet flowers*, *Bignonia radicans*.

The underbush is mostly an evergreen small tree, about twelve feet high, related to the almonds, whose leaves taste very much like almonds. It goes often by the name of wild peach. Its fruit has two kernels, similar to coffee berries, in a hard shell. This tree grows so thickly that the seedlings of the giants of the forest, are smothered by them and with difficulty get along. Under it the ground is so thickly covered with blackberries and several other low growing shrubs, that hardly a blade of grass can come up.

As a contrast of the Brazos, the shores of the Colorado, at times of the year a mighty river, are poorly wooded, and for miles show nothing

but sand banks. Wherever the Colorado forces its way through mountains, there cedar trees line its shores, and where it crosses a small valley, there its shores are fringed with elms. Again a desert of white sand are its shores near the city of Austin, whilst about a hundred miles below Austin there appear along its course the pines of the pineries of the eastern section of the State. Finally the oaks come along as far as the river enters the prairie. From that line down, the Colorado carries its waters to the Gulf along treeless shores. Now let us look at the imposing and totally different flora along the Guadeloupe River.

Its chief ornament is the beautiful *Cypress*, *Taxodium distichum*, eighty, to one hundred and fifty feet high, and five to ten feet in diameter, a tree which likes to stand near the water, and to send its roots into it. The *Cypress* trees often stand so close as apparently to form a solid mass of trunks, and the tops to form a solid roof across the river. It is found also on all the tributaries of the Guadeloupe: the *San Marcos*, the *Comal*, the *Cibolo*, the *San Antonio* and the *Medina*. The valleys of these rivers are generally narrow; the largest of them is that of the *San Marcos*, which towards the east, has a width of about fifteen miles. Here we find also *elms*, *live oaks*, *cedars*, and *Pecan-nut trees*, the latter, *Carya olivæformis*, is nowhere in the State found but on the river system of the Guadeloupe. A tall and stately tree with dense top, fond of rich soil.

The underbrush of the Guadeloupe woods is likewise peculiar to this river, and consists of a great diversity of fruit and other trees. The most numerous are the wild plum trees, *Prunus Americana*, and *Prunus Texana*, the black *Mulberry tree*, *Morus nigra*, a *linden tree* of low growth and large leaves, an *elm*, *Ulmus fulva*, *Cercis reniformis*, which is found both as tree and shrub, and the splendid *Sophora affinis* with its large blue blossoms.

EDITORIAL NOTES

EDITORIAL TRAVELING NOTES.—A couple of years ago I was walking through one of the Paris parks with a small party of friends when one of them dropped a piece of paper on the road. It was not long before an elderly man with a broad ribbon and several medals hanging therefrom, suspended from the lappel of his

coat, approached, and very politely hoped Monsieur would not permit the walks to be disfigured. I could not help thinking of this incident as I took for a holiday once this season a tour through some of the Philadelphia public squares. It was at the end of June, at a season of the year when nature is in her neatest trim, and but very little effort from man is needed to keep a garden in good order. There were indeed no dead leaves from the trees, but bits of paper from provision baskets, letters and newspapers, banana skins and pea-nut shells, and dirt and filth of every description covered the smooth gravel walks, that in one small square of perhaps five acres, I am sure a dozen cart-loads of dirt could have been swept up on that bright and clear June day, from the few walks alone. To reflect a little on the difference between a French and an American "square," I sought a seat. I found at length a round post the top of which once had been about eighteen inches over, but which had now some four inches of its width split off on each side, exposing the nails which had once been on the dividing line, and the narrow piece of this once mushroom stool that was left was so racked and splintered by jack-knives, that some future antiquary might regard it as having had some remarkable meaning in a past age. With some care to keep the nail-heads from making work for my tailor, I commenced to take stock in the park ornaments. A huge "bird box" for the English sparrows first met my eye. It was made to represent some great building, but whether the Philadelphia Alms-house, Cherry Hill Prison, the State Lunatic Asylum, or the Capitol at Harrisburg, I could not well determine. However, the windows were very numerous, but had no glass, for the birds had to go in and out as if they were doors. Possibly in this house there were excellent kitchen and other arrangements, with the bed rooms and furniture to match, but I took only time to note that this pretty piece of architecture had given a good job to some poor dog of a carpenter and painter; but the point was marred by the reflection that after this much in charity had been done the money had probably run out, for a very light pole had been provided to set this pretty toy on without thought of its great weight, so four or five shores had to be provided to prop up the whole. But the rough shores propping up the handsome house was ludicrous in the extreme, though all in keeping with the rest of

the surroundings. On the other side of me was another tall post which at one time had some evident pretensions to artistic taste. It had a board nailed to it at the top, and on this a piece of rusty tin. The nails had drawn themselves out by age in one corner, and the tin turned up. In one or two places a little japanning was left, and the remainder of a few golden letters were seen here and there. In one case I made out these words, "dogs run," but even here the g had part of its tail peeled off. Near the centre was an officer's watch-box, and around it a few bushes which had evidently been intended to screen disagreeable things, but they made no screen. Here in full sight was a pile of old iron; and there were old wheel-barrows, old ladders, heaps of dirt, rotten grass, and old lumber of every description. Dead trees had been taken out, and instead of the earth being neatly replaced and levelled, or better resodded, it remained as rough heaps which some charitable weeds had endeavored to ornament. Wherever there was an opening between the trees, some one the Fall before had stuck in some score of Norway Spruces, and then to protect them from some fancied trouble had piled up several inches thick of fresh stable manure, the salt from which of course had killed them all; and there they were, these poor dead Norways, looking like brooms provided for the sweeping of the walks, but with none to make use of them. In the middle of this unfortunate "park" was a "fountain" and "basin," which had evidently cost some money in its time. In the basin at regular distances were four large black masses of earth as I supposed, and I was really glad, for I thought it was an attempt to introduce water lilies, and even this little show of care was pleasing; but imagine my disgust when I at length discovered that it was simply the accumulation of weeks of filth around waste pipes. Around this basin once on a time there was an attempt at gardening, and a rather neat iron fence kept off the trespasser. Now weeds of the vilest character occupied the ground. A few Fellenberg roses were still struggling through the grass; there were also a few stocks of some old fashioned flag, and there was one *Geranium* and one *Lantana*. Almost all the maple trees and the horse chestnuts had been skeletonized by the caterpillars of the *Orgyia* moth, though this insect deposits its eggs in large masses only on the rough bark of trees where they can be easily destroyed, and the ground filth of the

caterpillars under these trees made the filthiness of the place hardly less disgusting than the tobacco stained flag stones on the side walks around the park. These flag stones were neat, being very smooth and all of one size; and the man who laid them had evidently prided himself on having all laid in exact line. It must have been a costly and nice job, but tobacco juice had caught the dust. In some places there were masses of dirt three inches thick in the places near the side wall where feet could not tread, and weeds were already getting a hold and covering up the pretty workmanship.

I passed from here to New York. It was raining heavily, so I could only take a rapid ride through its famous Central Park. As the first to give a taste for public works of this character, and in some degree the result of life-long effort on the part of our great landscape gardening apostle Downing, I was particularly anxious to see how it looked after these many years of vast expenditures; but I could scarcely feel that it was very encouraging for other cities to go and do likewise. It is well known to those experienced in landscape gardening that the skilled artist is required much more seriously after a place has grown up somewhat than when it is first planted. If a designer were to arrange things only as they are to look in some twenty-five or fifty years time, no one would employ him. He has to make a picture that will look well at once, and yet must so arrange that as some are every year taken away as the mass grow, the balance remaining shall look only the more beautiful. To employ an expensive landscape gardener, and to spend largely on ornamentation, only to leave the whole in a few years to a set of ignoramuses, is money thrown away. Far better would it be to take a piece of ground, throw stones freely over it, then plant a tree or bush where the stones fell, and in some half a dozen years employ a skilled landscape gardener to thin out and make something of the whole as the trees grow on the ground, than take the New York plan as it appeared to me now. Trees and masses of vegetation that were evidently intended to be but of temporary use, are now crowding out the rarer and more valuable material. Spots which were once beautiful have grown into deformities, and this will go on until the whole becomes a very commonplace affair. And yet this will not be perhaps strictly the fate of the Central Park. One may

meet sometimes among the lowest of human kind, some few whose continuous dissipations during many years have still left some marks of beauty. The original design was too lovely for even the most destructive power wholly to efface. Central Park even in its old days will still be a handsome wreck, and I fancy will always have something left of its original glory for any one to admire. Even now it is an excellent school for the would-be landscape gardener. Some one of its former managers has had a good eye for variety, and there is an immense amount of material here both in individual trees and shrubs and in their composite character, which can not be so well studied elsewhere. These points of beauty abound; and for those students who would perfect themselves in the details of landscape gardening, and who would like to know what beauty trees and shrubs are capable of affording in almost endless variety, could not do better than spend a whole month at least in an analysis of what is to be found in Central Park.

I have now taken the reader with me through a small park belonging to a city which has great pretension to art and taste, and through a pretentious park of another great city. As I return I will take them for an October walk through another "square" or small park of the first proud city. As we enter the gate we come right on several cart loads of filth, apparently of several weeks collection, and around which we have to course before we can enter. It would appear from the contents of the heap, that for a while the falling leaves were gathered, but no sign of any sweepers are about now. Indeed the little boys are gathering the bits of paper that lie about loose, and are lighting them, making little bonfires on the paths right before you. The paths themselves are only discernable from the places where the grass should be, by the grinding the leaves have received from the feet of passengers. Therein, in this trail, variegated by peach stones, apple cores, banana skins, and the omnipresent remains of peanuts, the traveler may find his way out, if he keeps to the beaten path. Now, when it is remembered that one expert broomist with a long slender switch-like birch broom could go over every walk in one of these city squares once a day in ordinary times, needing only an assistant at the fall of the leaf, the innocent searcher after the truths of social science wonders why it is not done. But it is the same story all over. The same in the great Central Park or the little Philadelphia square. It is that

the men who are employed to do the city work, don't know anything about the work they are called upon to do. The man who manages such city property at a salary of \$1,500 or \$3,000 a year, knows no more about it than the broom man he employs knows about his broom. I have said that any one of these city squares could be broomed all over once a day by an expert broom hand, but not one of the men employed could probably do the work in a week or even in a month—it is not their trade. I believe that this city work is generally as honestly conducted as the average of work in private life would be under such a system. Indeed I regard the attacks on the men often unjust, considering how, and in what manner they get into their positions. They work very hard to get into the places and positions they occupy. It costs the commissioners many a hard day's work, many a sleepless night, and much money. Nor can they get these positions without much help from their less fortunate fellows. The poorer men go round among their fellows and talk for their patrons, and their only reward is to get work if their friend gets into the coveted office. I said to one of these city officers not long since, would it not be just as well if he employed men who knew something, to do this work? But he explained that he would rather have them if all other things were equal, but he "could not go back on his friends." He admitted that he had been anxious to get the position he occupied. It was one he said, of honor, and though the salary was but \$1,500 a year, he could put his knowledge of men and things to such good account that he had "made money fast;" but he "would defy any one to show that he had not made every dollar he had honestly."

It seems to me that the whole matter resolves itself to this, that those who work the hardest for offices get them; and that they then take care of those who help them along. If the man who "understands his business" happens to be in with this crowd, he has a chance of being the right man in the right place. If not, the wrong man gets there.

I would like to see the public parks and gardens of our country better. It is painful to see them so often in a condition that would disgrace a poverty stricken family in a back alley; but it seems to me the remedy lies not in abusing the poor wretches who, by dint of hard work have got into an "office," but we should rather blame that system which makes such a successful result to individual effort possible.

SORGHUM AND MAIZE SUGAR.—The Commissioner of Agriculture, has published a circular letter showing what has been done towards manufacturing sugar from Indian corn and Sorghum. Sugar can be obtained from a large number of plants, but so far no process has been discovered to make the article cheap enough to compare with ordinary cane sugar. Sorghum has had some success as against ordinary cane molasses, but it barely holds its own. We do not find by this report that the cost of production has been materially reduced over that of past times. We are told that the total cost of production "should not" exceed two and one-half to three cents per pound, and that there "ought to be" a ton of sugar to the acre of ground, if the instructions issued by the department be carefully followed. This makes the cost about \$60 per acre. At the present time such sugar can be bought in any wholesale market at about eight cents per pound. It is the general experience with all farm products that after transportation, commissions and other expenses of marketing are paid, only about one-half the market rate comes to the producer. Often he thinks himself well off to get this. If we allow two cents per pound as the final profit to the producer, it only yields a profit of about \$40 per acre, and this is no more than an average crop of corn ought to produce, and much less than the profit when "instructions for good culture are carefully followed." But there is still another point to be considered; eight cents per pound is the rate now. If we double the product we cheapen the demand, and the price will therefore fall with the increased product.

The department deserves great praise for its endeavors to have the subject carefully investigated. And though we do not see that what has been done has advanced us far, good may come out of it all in time, and the Commissioner has our hearty commendation for his endeavors in this direction.

POLITICAL ECONOMY.—The learned works on the science of political economy, like works on all other sciences have to be re-written from time to time, as new facts come forward to modify old ones. Some curious results have been found to follow in Canada from the import duties on garden produce from the United States. The Canadians at one time produced little of these, because, said they, "where is the use when Americans can raise these things cheaper than we can?" So they enacted import duties,

and the result was that they fell to competing among themselves, and the *Toronto Globe* says, never in all Canadian history was the market so glutted with all kinds of vegetables, and, as a consequence have prices ruled so low.

Precisely has been the experience in the United States. Heavy foreign houses crushed out home competition and controlled the markets, keeping prices high; but as soon as they were kept off, home firms competed with one another, until prices fell below what they were in olden times. And yet this is not what we learned of "political economy" in our younger day.

GOOD GARDENERS.—When in Boston we did not get the names of the gardeners to whose good management Forest Grove Cemetery and Mount Auburn Cemetery owe so much of their good keeping. Mr. Farquhar is at the former, and Mr. Collins at the other.

PAPERS BEFORE THE AMERICAN ASSOCIATION.—The *Scientific American* with its usual enterprise, is giving in a supplement to its general edition, what it regards as the most interesting papers read before the recent Saratoga meeting of the American Association. The number for the week ending September 16th, contains the paper by the Editor of this magazine on the "objects of sex and of odors in flowers."

MICROSCOPIC FUNGI INFESTING OUR CEREALS.—This paper, read before the Philadelphia Academy of Natural Sciences, by Professor Barbeck, has been published in full by the *American Naturalist* for October. It is a paper that will deeply interest the fruit grower and horticulturist generally.

THE NOTES AND QUERIES.—Without doubt most of our readers highly appreciate the "Notes and Queries" of our correspondent "Jacques." Modern literature, even the best of newspapers contain little that minister to the wants of intelligent people who are in love with rural life. Gardening, properly understood, brings one into contact with every department of art and science, and throws a charm around existence in this enlarged condition that few other occupations can supply. "Jacques" is himself a country gentleman of the old school. In various walks of literature he has distinguished himself; and, besides a successful business career, he has been long noted as a leader among amateur horticulturists. In his retirement from business he finds increased delight in his early love for horticulture, and freely

gives to our readers such little bits of experience as he picks up in his daily walks through his grounds, or among the books and friends he loves so well.

N. C. MEEKER, in charge of the Indian Agency at White River, who is among those massacred in the recent out-break, was one of the many self-made men of whom our country may well be proud. He first became known to the writer while working a farm at Dangola, in Southern Illinois. Through some letters to the *New York Tribune*, he attracted Mr. Greeley's notice, and became attached to the *Tribune*. The letters were tersely and vigorously written, and had the rare merit of being full of news of general interest, and of ending when the writer had nothing more to tell. Horace Greeley, with his well-known faculty for detecting useful associates employed him as a regular correspondent, and his traveling letters through the West did much to make the *Weekly Tribune* popular. On the retirement of Solon Robinson, Mr. Meeker assumed the editorship of the Agricultural Department of the *Tribune* in which he was very successful. He was strongly imbued with much of the social philosophy which moved Horace Greeley, with whom he was quite a favorite. In his agricultural studies he had become much impressed with the value of irrigation as in use on the plains of Lombardy, and was very anxious to carry out a similar plan in American agriculture. With the encouragement of Mr. Greeley, he made a trip to Colorado, and decided on the adaptability of a small mountain stream known as the Cache la Poudre, as being favorable to the establishment of a colony in which agriculture by irrigation should be the chief foundation stone. The colony was formed,—the total banishment of all intoxicating drinks from the settlement being also one of its peculiar features. He also established a newspaper called the *Greeley Tribune*, which, with the city he founded under the same name has proved a great success. During the past few years he has been engaged in teaching farming to the Ute Indians, under and with the encouragement of Chief Douglas; and all who knew Mr. Meeker would have no more faith in human nature, if his mission was not honestly and faithfully performed. He has had no end of trouble in getting them to work, but in spite of all obstacles was able to boast when last the writer heard from him, that he had caused them to dig several miles of the main irrigating canal, and hoped the coming

season to show that even untutored savages as they are called, could raise wonderful crops when under good advice.

Mr. Meeker was well known to many in the East as one of the Commissioners to the Centennial from Colorado. He was continuous in his efforts to have a plot assigned to him with water privileges, in order to show how agriculture was carried on in those parts of our country where there is little rain. There were many difficulties in the way, and before they could be overcome the season was too far gone for planting. This he always regretted, as he had full faith in the idea that our rainless regions under systems of irrigation were really more valuable for agricultural purposes than those seemingly more favored places watered by frequent rains. It was one of his ambitions to live to show this conclusively; and, whether or not the results would have equalled his enthusiasm, he has already accomplished enough in that line to render his loss in some measure a national calamity. His son Ralph partakes of his father's energy and genius, and we believe was editing the *Greeley Tribune* in his father's absence. At this writing it is believed that his wife and daughter who were philanthropically devoting themselves to the education of the savages, have escaped.

THE NATIVE FLOWERS AND FERNS OF THE UNITED STATES.—The useful little *Botanical Index* of Indiana, has not come to our table for some time, but by a communication from a friend, we learn that it has announced that the "Native Flowers and Ferns of the United States" has suspended publication for want of patronage. The contrary is the fact. The work as proposed to be finished in ninety-six chapters, has been completed, and not suspended; and as it is electrotyped and chromo-lithographed, it may be had by any one during the next century.

When it was projected, it was announced that if the public seemed to desire it, another series of ninety-six chapters should be issued. Instead of there being a want of patronage for the first, the publishers were encouraged to go on at once with another. This also has been completed, and one-half the issue delivered to subscribers. For this set also the "patronage" has been sufficient to warrant the preparation of a set of drawings for a third set of ninety-six chapters, for which the editor will prepare the

MSS. the coming year. Indeed the patronage has been all that the editor and publishers had a right to expect for so expensive a work. Three separate sets, making near 300 of our leading wild flowers, will certainly be illustrated and described; and there is no reason, so far as mere "patronage" is concerned, that we can see, why the work should be "suspended" in any sense, till all the leading wild flowers of the United States have had some justice done to them.

HORTICULTURE AT THE CENTENNIAL.—Reports and awards of group 31. Pomology and kindred branches of Horticulture. These have been just issued by J. B. Lippincott & Co., Philadelphia, in a neat twenty-five cent pamphlet. The reasons for all the awards are given. The following is a specimen taken at random: "An award is made to Mayor Pafford, Niagara, Ontario, Canada, for the successful culture of the Exotic Grape in the open air. He exhibits Black Hamburg Grapes, a bunch weighing sixteen and a-half ounces, of excellent flavor, and little inferior to the best specimens generally raised under glass." Besides the full account of all awards made in detail in this way, is the report of the Secretary of the Board of Judges on the advance of Pomology during the past century.

FIRST STEP IN CHEMICAL PRINCIPLES.—By Henry Leffman, M. D., Philadelphia.—Edward Stern & Co. This is a very small book of about fifty pages, but is intended to give an insight into the great science of chemistry. Those who have not time or inclination to go further, as may be the case with many horticulturists, can stop when they get through with this, and yet feel that they know enough to understand what chemistry means, and to converse intelligently in a general way about it; while those who intend to go into the study in detail, will find it just the thing to encourage them along. Dr. Leffman is assistant Professor of Chemistry in the Philadelphia High School, and has had good experience as to the best methods of teaching his favorite science.

REPORT OF THE ENTOMOLOGISTS OF THE DEPARTMENT OF AGRICULTURE FOR 1878.—By C. V. Riley, Entomologist.—Reading these valuable papers—for none more valuable have ever been issued by the government—it is to be regretted that the author is no longer in that service. There is a chapter on the insects injurious

to the cotton plant. A paper on the production of silk, is very full in all the details. The chapter on the grape Phylloxera is brief. He shows that the insect can propagate for at least four years under ground without the intervention of the impregnated egg. In regard to the destruction of the Codling Moth, Prof. Riley believes that where it is too much trouble to keep the apples from the worm, there is nothing left but to eat wormy apples. A chapter on Elm Beetles, shows that besides the foreign species *Galeruca Xanthro melaena*, the slippery elm is attacked by another one, *Monocesta coryli*.

Paris green shaken over the trees is effective in destroying them. A borer destroying clover roots is described; it is *Hylesinus trifolii*. Also a midge destructive to clover seed. Fuller's rose beetle also has respect paid to it. Besides these there are other chapters on insects of less practical importance.

VEGETARIANISM THE RADICAL CURE FOR INTemperance—By Harriet P. Fowler, New York. M. L. Holbrook & Co.—This is a paper-covered book of eighty pages, and devoted to the cure of intemperance on the plan outlined by the title.

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

CALIFORNIA HORTICULTURAL SOCIETY.—A call headed by Dr. Hilgard and signed by a large number of distinguished names will soon result in a California Horticultural Society.

PRESIDENT WILDER'S ADDRESS.—Concluded from page 320:

Catalogue.—Agreeably to our former custom, I have no doubt our Catalogue will receive special attention in regard to its enlargement and revision. This is one of the most important labors of the Society. Great advantages have already resulted from it to the country and the world, and we owe a debt of gratitude to Mr. Barry, Chairman of the General Fruit Committee, and his associates, for the intelligence, enterprise, and careful discrimination exercised in the preparation and correction of its columns, which posterity will never forget. This Catalogue is becoming more and more valuable with every issue, embodying as it does, the ripest experience of the best cultivators in all parts of our country, and classifying as it does our fruits, registering from time to time everything that is valuable, and entering upon its pages everything that is desirable for the various sections of our widely extended continent and rejecting such fruits as may on careful trial be deemed unworthy of a place in its pages. Into this catalogue is condensed the substance and essence

of our proceedings and all the various State reports, and with every revision it may be expected to approximate nearer and nearer to perfection. If the Society had rendered no other service than to give to the world its Catalogue of Fruits, it would have fulfilled an important mission. And if I were asked again what was the most important measures ever adopted by the Society I should answer as before,—its Catalogue of Fruits. Persevere, then, in this line of our researches, and you will embrace in its register every new or old fruit of good quality, with its peculiar adaptation, and whether worthy of extensive cultivation. Persevere, I say, in your noble work, and you will leave to the generations that shall follow you richer memorials than those of marble or of brass, that can only perpetuate in lifeless praise the value of your services on earth.

Insects and Diseases Injurious to Vegetation.—In regard to insects and diseases which are making such devastating progress in our own and other lands, it is not necessary for me to enlarge, as cultivators are fully aware of the importance of the subject. Thanks to Harris, Riley, Fitch, Glover, Le Baron, Thomas, Packard, and other entomologists, who have devoted their lives to the investigation of this subject, and from whom we have already derived so much benefit in the past, and to whom we look for aid in the future in teaching us how we may arrest the depredations of insects, and the remedy for diseases,

we have discovered means for the destruction of many insects and diseases of trees, and we have faith in the ultimate triumph of man in discovering remedies for, or the means of preventing, most of these that vegetation is subject to from the ravages of insects. Everlasting vigilance is the price of reward, and this is especially true in contending with the host of vile creations that we have to meet with in the culture of fruit trees. I desire, however, to call especial attention to the ravages of that terrible insect the phylloxera, which is now become of such vast importance to the grape growers of Europe, and has brought them to a condition little short of desperate.

From the interesting paper by our Mr. G. W. Campbell, Commissioner from the State of Ohio to the Paris Exhibition of 1878, in the Twelfth Report of the Ohio State Horticultural Society, it appears that the only reliance of the French vinyardists for overcoming this scourge is the grafting their varieties on stocks of the American species, among which the Jacques, supposed to be identical with Longworth's Cigar Box Grape, is pre-eminent for health and vigor. Mr. Campbell says: "The enthusiasm in favor of the American vines reminds me of the flush times in America when the 'grape fever' was at its height, and when grape growing was the all-absorbing question in many parts of this country." Although we deplore the loss to the French vinyardists, the recognition of the health and vigor of the American species cannot but be gratifying to those who have labored so diligently to originate and introduce new and improved varieties. It is also gratifying to know that, though as a rule the French do not like the flavor of our wines, they admit some of them to be good, and we believe that with the lapse of time they will be more and more appreciated. It is matter for great thankfulness that on this continent we have thus far experienced but little injury from this scourge, and the health of American vines in France affords strong hopes that we may continue to be exempt.

Since writing the above we are informed that the phylloxera continues its deadly march over the vine-clad hills of France, having, it is estimated, already destroyed some 900,000 acres of vines, and great fears are entertained for the safety of the remaining vineyards of that country.

In Memoriam.—Since our last session several members of our society have closed their pilgrimage on earth, but their labors in our cause

will live to bless the world, and their names will be treasured up in our memory as benefactors to mankind.

First in order we would remember Hon. Willard C. Flagg, whose death was announced in a circular just as our last volume was going to press. He died at his residence, Moro, Illinois, on Saturday, March 30th, 1878. His memory will ever be cherished by us for his great ability and fidelity as Secretary of the American Pomological Society, and the various other institutions of our country with which he held official relations. Few men of his age have held more offices of honor and trust, which were properly referred to in a closing page of our last issue.

Mr. F. R. Elliott, formerly Secretary of this Society, died at Cleveland, Ohio, in February, 1878. Mr. E. possessed large experience as a pomologist and horticulturist, and from early life was a contributor to public journals, and was also an author of several popular works on these specialties. He was one of our early members, and ever took an active part in the proceedings of our Society. For many years he was Secretary of our Society, and had a natural facility for accomplishing the work of that officer. He will be remembered by a large circle of friends throughout the country, as one who did much for the promotion of American horticulture and pomology. We delight to remember him at one time as one of our most useful men; but misfortune overcame him. We remember his valuable services in the cause we are seeking to promote, but it is not our province or duty to speak of his misfortunes or frailties. No, let us, rather spread the veil of charity over his grave, and remember the good he has done. Peace to his ashes!

Silas Moore, Vice-President for the State of Rhode Island, died at his residence, near Providence, several months since. He was one of the older members of our Association, having held for many years that office. Mr. Moore was one of the oldest nurserymen of New England, well skilled in his business, highly esteemed for his probity, and had done much for his own and adjoining States to promote the present advanced condition of American pomology. He was a modest and unpretentious man, much interested in the welfare of our Society, and had exerted a happy influence on the fruit culture of his own and adjoining States. He was a useful man in his profession, and respected as a citizen.

Dr. A. P. Wylie, Vice-President for the State

of South Carolina, died at Chester, nearly two years since. Many will remember his interesting and scientific paper on the cross-fertilization of American and foreign grapes, especially on the different forms of pollen grains, showing how it was not possible for some kinds to fertilize others. They will also remember the fine specimens of grapes of his own crossing which he has shown at the various exhibitions of the American Pomological Society, especially the Peter Wylie, now in much repute, at the South. Dr. W. was a modest unpretending gentleman, and was eminently a man of science, much attached to the cultivation of fruits, and the results of his investigations are of great interest not only to horticulturists, but to vegetable physiologists. His loss will be much deplored by all who knew him.

Dr. H. A. Swasey, died at Tangipahoa, Louisiana, of yellow fever, September 18th, 1878, in Washington Parish, at his post of duty as a physician in contending with this fearful disease. Dr. Swasey was born at Saint Johnsbury, Vermont, but had resided at the South for a long time. He was a strong friend of the American Pomological Society, and warmly attached to the pleasures of rural life. He was one of our Committee on Native Fruits, and on the revision of the Catalogue. During a long and busy life he was connected with the agricultural and horticultural press. He was for a considerable time editor of *Our Home Journal*, of Louisiana. He published a horticultural journal at Yazoo City, Mississippi; was connected with the *Rural Alabamian*, at Mobile, and took editorial charge of the *Southern Plantation*, at Montgomery. He was a constant contributor to the agricultural and horticultural press, dispensing freely of the knowledge he acquired, and much of the horticultural improvement in the South is due to his zealous and unselfish efforts to promote the public good.

Although it has not been our custom to refer to others than those who have held official relations with us, I think it proper also to notice the death of Col. Edward Wilkins, of Chestertown, Maryland, who died December, 1878. From Col. W., it will be remembered, the Society received especial courtesies at its session in Baltimore. At his invitation the Society visited his extensive peach orchard, the dimensions of which would astonish the world. It was probably the largest of which we have any record. He was much attached to fruit culture, and did not con-

fine himself to peaches alone. He was one of the fathers of the immense peach trade, and his orchards were wonderfully successful. He was one of the foremost horticulturists of Maryland, full of enthusiasm, and characterized by business-like methods in this and other walks of life. He was universally respected as a progressive man.

There may be others who have held official relations with us, who have died since our last session, of whom I have not been informed; if so, I trust appropriate resolutions will be passed, expressing our respect and gratitude for their services in our cause.

Conclusion.—In conclusion, with a heart full of gratitude for the many honors you have conferred upon me as your President, I now lay down the robes of office with which you have clothed me for twenty-nine years, feeling assured that though we may die, our institution shall live, and as time advances, others will take it up and foster it with the same love that we have entertained for it.

Cherish, then, the friendships and kind sympathies which has existed between us. The cause you seek to promote is the cause of civilization and humanity. A few more years and those who now occupy these seats will have closed their labors on earth, but the same earth will bring forth its myriads of fruits and flowers, and yield its bounteous harvests for the service of those who may come after us.

A few more days, a few more months, and he who now addresses you will have joined the great congregation of the dead, and have passed beyond the horizon of life, but his spirit shall continue to render thanks to the Giver of all good for the blessings which have flowed from the influence of our association. May it live on, and on, and be perpetuated as a benefactor of mankind. And what more dutiful or grateful service can we render to our kindred or our country than to hand down to posterity the choicest fruits we have been enabled to produce for their use. May the success of the past cheer and stimulate you to greater exertions in the future, and although you may not live to reap the rich harvest which you are now planting, your children and your children's children shall rejoice in the result of your labor long after you shall have passed over the river to those celestial fields,

Where the verdure of Spring time forever shall reign,
And the perfume of flowers float o'er the bright plain,
Where the noontide of Summer and Autumn shall blend,
In the harvest of fruits that never shall end.



COLOR PLATE

When you take out a cutting out, bring on another year's winter employment, but of course. There is no very great amount of surgery required for this and yet some judgment is necessary. This is often done with little more than a boy has for whittling a chip—namely to have some thing to do. For notwithstanding the many papers that have been written on the philosophy of pruning, the asked question "What is the best time to prune trees?" is not with which the gardener is commonly tormented. The keen-eyed gardeners give the cutting reply, "any time when your knife is sharp," but the more good natured say "it depends on what you want to cut for." The third answer "It wants to keep the tree head low," and was down to make them bend a little, pruning in winter doesn't have that effect, so that winter has some other object in view, such as to clean the tree of bark-eaters or to liberate it from insects, or the giving of employment by some half-starved tree-hewer, the work which as well be left undone. If you want to keep a few specimens of the pomaceous group in the same shape in winter, if your tree has a few remaining early buds, or a half-bud, it is better to cut it off before it spoils the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done the



Prunella pinnatifida

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VIBURNUM PLICATUM

THE
GARDENER'S MONTHLY
AND
HORTICULTURIST.

DEVOTED TO HORTICULTURE, ARBORICULTURE AND RURAL AFFAIRS.

Edited by THOMAS MEEHAN.

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DECEMBER, 1879.

Number 252.

FLOWER GARDEN AND PLEASURE GROUND.

SEASONABLE HINTS.

We have frequently urged the importance of planting places very thickly at first, in order both to produce an immediate effect, and also because the shelter which one another affords makes the trees grow with greater health and vigor than when exposed singly to the force of wind and sun. At this season no better employment can be found than in thinning out these thick planted places. It will of course require much judgment; but one fond of trees, and the effects which they produce, will not be much at a loss. Sometimes it is hard to bring oneself to cut down a tree which one has watched grow for so many years; but it often must be done if we would preserve the symmetry and beauty of our places. When there is any question as to the proper tree to be taken away, the size of the place may help one to decide. A tree which will in time occupy much space can be more easily spared from a small place than one which will never transgress a limited space. Indeed, except for the purpose of rapid growth to nurse more valued trees, large growing things should not be tolerated in small places. The green grass which is the charm of all gardens soon departs when large trees are about.

Of course, this talk about thinning out, brings us to another great winter employment, that of pruning. There is no very great amount of science required for this, and yet some judgment is necessary. This is often done with little more reason than a boy has for whittling a chip—merely to have something to do. For notwithstanding the many papers that have been written “on the philosophy of pruning,” the naked question, “what is the best time to prune trees?” is one with which the gardener is continually bored. The keen-edged gardeners give the cutting reply, “any time when your knife is sharp;” but the more good natured say, “it depends on what you want to cut for.” The street cutter “wants to keep the tree head low,” and cuts down to make them branch lower; cutting in winter does not have this effect, so that unless one has some other object to combine with it, such as to clean the tree of bark scales or the larva of insects, or the giving of employment to some half-starved tree carpenter, the work might as well be left undone. If you want a branch to push strongly at the point where you cut a part away, prune in winter. If your tree has branches crossing each other, or has half-dead branches, or anything tending to spoil the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done the

healthier will be your trees, for it may be accepted as a rule in gardening that all pruning, whether in winter or summer, is a blow struck at the vitality of the plant.

Sometimes we have to sacrifice a good object to gain some other point. So in hedges. The plants are usually trees. To devigorate them and keep them bushy is our great object. The principal pruning is therefore in summer. The winter pruning is simply to keep them in shape. There is, however, one kind of pruning which just suits both the principle and the season, namely, thinning out where thick planting has been adopted, as it is now by all who want a new place to look well without waiting too long for the charm.

Nothing "pays" like surface dressings of manure or good soil to evergreens and ornamental trees. Life is too short for mere natural growth. It is a pardonable vice to wish for large trees. Put on two inches of good stuff, and see how they will go ahead.

The winter's experience will no doubt show how much the comforts and pleasures of a place will be added to by liberal planting, and while the sad experience is on one is the right time to decide on the details. Good resolutions put off, like death-bed repentances, generally end in smoke. Odd spells will offer through the winter season to get ready soils and manure for spring uses.

COMMUNICATIONS.

THE LIGUSTRUM.

BY C. E. P., QUEENS, L. I., N. Y.

In the September number of the GARDNER'S MONTHLY, page 282, I notice W. G.'s remarks on Ligustrums, and that he refers to Messrs. Parsons & Son's classification. On reference to the catalogue of Ornamental Trees of Parsons & Sons Co., for 1879, page 14, I notice that *L. japonicum* and *L. ibota variegata* are classed as half hardy plants, but are marked with a cross, the cross signifying that they may be wintered safely in the open ground by covering; and in Parsons & Sons' catalogue of New and Rare Plants for 1879, page 11, *L. coriaceum*, *L. ibota* and *L. ibota variegata*, are classed as half hardy plants.

Of the Ligustrums, I have only tried *L. japonicum* as a hardy plant, and while I have been successful in getting it to live during a

moderate winter, by being well protected, still the result has been anything but satisfactory to me. The plants always came out in the Spring about half dead, and after the dead parts were cut off, the plants became so ill shaped that they had to be destroyed. I do not think that I shall try it as a half hardy plant again.

I do not understand Messrs. Parsons & Sons' classification of *L. ibota* and *L. ibota variegata*, but presume they are about as hardy as *L. japonicum*. Now Messrs. Parsons & Sons will confer a favor on many of your readers, if they will give through the MONTHLY, their method of covering the Ligustrums and how their condition is in the Spring.

I also notice in Parsons & Sons' catalogue that *Acacia lophantha* is described as a half hardy plant. Have you or any of your readers had any experience with it in this respect?

Will some of the readers of the MONTHLY give their experience with the Belle de Chatenay Violet? Is it the best white variety?

NOTE ON HYACINTHUS CANDICANS.

BY E. H. KRELAGE, HAARLEM, HOLLAND.

In the September number of your MAGAZINE, pp. 267, it stated that *Hyacinthus candicans* was first made known to Americans by a German exhibitor at the Centennial. Allow me to observe that this is an error. This fine summer-blooming Hyacinth came first to America from Holland, and it was our firm who planted a lot of it in the grounds of the Centennial Exhibition, where it flowered very satisfactorily, and was much admired. A medal was awarded for it to our firm.

LILIUM HUMBOLDTII and LILIUM PARRYI.

BY PARISH BROS., SAN BERNARDINO, CAL.

These beautiful lilies are natives of this part of California, and a few remarks upon their natural habits may perhaps be of interest and service to those who cultivate them. They are as unlike as lilies can well be; yet it would be hard to say which most charms the lover of flowers, the stateliness of the one, or the beauty and fragrance of the other.

Humboldt's Lily, *L. Humboldtii*, is quite generally distributed through the upper part of the canons of San Bernardino Mountains, at an elevation of about 4000 feet above the sea, but where there are but light frosts or snows. It

prefers the less steep sides of the canons, growing at a depth of eight or ten inches in the soil, which is mainly broken stones of all sizes, compacted with coarse decomposing granitic sand. But while found in the finest condition in such locations, this lily has such a power of adaptation that a bulb is sometimes seen protruding from a dry cliff into the crevices of which its roots only can penetrate, while others are found growing at the very edge of streams which continually saturate them with water. A partial shade develops the most perfect specimens, but those exposed to the full glare of the sun do better than those in deep shade.

In March, when the ground is wet and the sun warm, the bulbs send up their stout stems, and, growing with great rapidity, are in full flower by the first of July. The rains are now over for the Summer, and as their soil cannot retain moisture, they remain perfectly dry during their period of rest.

The bulbs are loose and open in structure, with long, broad scales, and often deformed in shape by the stones among which they grow. They differ greatly in size; a bulb of two ounces in weight will send up a stem eighteen inches high, bearing from two to six flowers, and from this they range through all sizes up to the grand plant ten feet high, with more than forty immense flowers, and a bulb weighing a pound and a half. In general appearance this lily somewhat resembles, but surpasses, *L. superbum*. The ground color of the petals is bright orange, with large blood-red spots and blotches.

In cultivation, this lily should have a well-drained and not over-rich soil, and not too much shade. A large bed which we treated in this way, presented hardly a failure, and when in bloom, was a beautiful sight.

Parry's Lily, *L. Parryi*, was discovered in 1876, by the distinguished botanist whose name it bears, and has been found only in this vicinity; from a competent knowledge of the country, we can say that it is exceedingly rare. Should there be a demand for it, the supply must be mainly from artificial propagation. The scales root with great readiness, but judging from the season's growth of a lot of bulblets, it will probably take a number of years to produce a blooming bulb.

These lillies grow in a locality higher and colder than *L. Humboldtii*, and where there is considerable snow and ice in Winter, and they would no doubt prove hardy at least as far

North as New York. Occasionally one is found in rather dry soil on the banks of streams, but their favorite location is in tussocks of coarse grass growing in the rich soil of "cienegas," as small tracts of springy ground are here called. They send up a slender stem two to six feet high, with scattered leaves, producing in July from two to sixteen horizontal, lemon-yellow flowers, the interior sparsely sprinkled with purple dots. They are very fragrant, and of an exceedingly graceful appearance.

The bulbs are somewhat rhizomatous, with close, narrow, jointed scales, and are small, seldom exceeding two or three ounces in weight. A one-ounce bulb will produce a good flower. We have grown *L. Parryi* in ordinary garden soil with entire success. It ought to have considerable shade, and cannot be hurt by water. We believe it has not yet been offered for sale, but a few bulbs were distributed two years ago to botanical gardens and leading florists in the Eastern States, England and Australia, in all of which places it has, we understand, been flowered, and has excited a great deal of interest among those interested in rare flowers.

EDITORIAL NOTES.

VIBURNUM PLICATUM—See frontispiece.—It takes a plant a long time to become well known, no matter how valuable may be its ornamental character, and this is specially the case with the present plant. It has long been a popular inmate of Japanese gardens, and is supposed to be a native of that country, though so far as we know, only the barren garden from here illustrated is known. In a Japanese work on ornamental garden plants in the library of the writer, brought from Japan by the expedition of Commodore Perry, there is a very good drawing of this plant, from which we learn that its vernacular name is "Adsai," and it was brought to the attention of Europeans by Kämpfer who wrote of this and others as early as 1710. Thunberg who wrote of Japan plants towards the end of the same century, thought it was probably the same as our American *Viburnum dentatum*, to which indeed the latter has a close relationship, acting in this way in common with many other plants of the Eastern United States, which, as Dr. Gray has pointed out, have intimate relations with Japanese plants. But it is only within the past twenty years that it has been introduced

into cultivation, and we in America owe it to British gardens, from whence many of our nurserymen have imported it. The earliest plants came to this country soon after their introduction into England through the late Alfred Cope of Philadelphia, in whose grounds plants have been blooming for the past fifteen years. Nothing can exceed the beauty of these large plants when in full flower. The old snow-ball is rather a straggling coarse bush,—the new Japan snow-ball, the kind we now illustrate—is in itself a beautiful plant. The very dark green plaited foliage is pretty as well as the plant, and the snow-white clusters of flowers against the dark green ground, make a large full grown plant very effective. The repeated notices which we have given of the plants during past years have no doubt been the means of insuring for it a large propagation among nurserymen, and it will therefore no doubt be a plant easily secured at a moderate price by all those who love really beautiful things. It is one of the hardiest and most easily grown, and probably there is not a spot on the American continent where it will not thrive.

DWARF CATALPA.—Mr. Samuel Parsons, Jr., has the following in the *Country Gentleman*: "Again I am drawn to say something of catalpas. Their bright green massive foliage so attracts one by its permanent beauty and health at this season, that I shall not excuse myself for reverting to the species. This time, however, I wish to note the value and beauty of the dwarf catalpa, *Catalpa Bungei*, a perfectly hardy plant of the most shrub-like character. Retaining all the excellence of color and form pertaining to catalpa foliage, as well as its autumn permanence, it is yet always a round compact shrub of considerable size. This rounded shape is decidedly formal, and fits it for standing singly by gates or corners of paths, and also unfits it for grouping with other shrubs. A mass of the dwarf catalpa, however, planted by itself, especially on a side-hill beneath the eye of the passer-by, is very effective in the Fall, or indeed at any other time of the year. Notwithstanding all these excellent ornamental qualities, the dwarf catalpa is little used on lawns. Must we attribute this to want of knowledge of its value, or is it mere neglect?"

We copy this in order, first, to commend what Mr. Parsons says about the value of this tree in ornamental work, and second, to correct an error which otherwise will make confusion to tree planters. The dwarf catalpa is the *C. Kämpferi* of nurseries, whatever it may be botanically,

for we have never seen it flower during the twenty years it has been in American gardens. *Catalpa Bungei*, is a large tree with leaves lobed somewhat as a buttonwood or some grape vines, though it flowers when very young, and in this respect is remarkable.

HYBRID COLUMBINE.—the *Garden* gives a colored plate of an *Aquilegia* in which the sepals are bright blue, and the petals yellow—a hybrid between the American *Aquilegia chrysantha*, and *A. coerulea*.

ANDROMEDA ARBOREA.—Mr. Falconer says in the *Rural New Yorker* that this beautiful tree is perfectly hardy in Boston.

AMPELOPSIS VEITCHII.—It has come to be the general belief that this and *Ampelopsis tricuspidata* are the same thing; but Messrs. Ellwanger & Barry have two very different plants under each name.

ADELAIDE BOTANIC GARDEN.—Dr. Schomburgk has just issued his report for 1878, on the gardens and plantations under his charge. The report deals extensively with agricultural and arboricultural subjects as well as with horticulture; there is also a lengthy paper on the vine phylloxera. The report is dated 26th February. At that time the highest readings of the thermometer had been 113 degrees in the shade, and 166 degrees in the sun in Adelaide, while in the north it is stated to have reached 124 degrees in the shade. A drought of nearly four months duration, only interrupted by one or two light sprinklings, had injured many plants and destroyed some, though the losses had not proved so great as might have been expected. Flowering plants suffered greatly, the report stating that this has been the worst season for flowers for many years past; fruit crops have not reached their usual perfection and flavor. Commencing with the Experimental Ground, the doctor states that the artificial grasses and other fodder plants have this year undergone a still more severe test than the last in consequence of the drought, though several kinds have withstood the drought bravely and show very little effect of it. Efforts have been made to introduce the esparto grass for paper, and these are likely to succeed. Our *Phytolacca*, or poke-weed, is also successfully introduced, it being in much request by Homœopathic physicians. The Herbarium already contains specimens of 16,000 species of plants, and the doctor considers it next in importance to the Victorian

Herbarium, under Baron Von Mueller. Many improvements have been also effected in the park.

THE VIRGINIAN CREEPER.—A correspondent of Mr. Robinson's *Gardening Illustrated*, writes as follows of our *Ampelopsis*. We do not think these distinctions have been noted in American nurseries, but they are worth looking into:

"I know of two varieties or species of this popular foliage plant, one worth growing, the other not. The latter is by far the most rampant grower, and any bit of it stuck in the ground will grow, while it produces a plentiful crop of suckers from the roots. It never assumes the splendid color of the other, but turns a little brownish-red or purplish before the leaves fall. The two kinds are quite distinct in appearance when planted out, but when grown in pots under shelter, the worthless sort when young is so like the other as to be very difficult to distinguish.

"In the good kind the leaflets droop on all sides from the central point; the expansion of each leaflet also droops slightly from the midrib, so that a section across the leaflet would resemble the form used in common wood engravings to represent flying birds —, the junction of the two curved lines being the midrib.

"In the worthless variety the leaves have a stiffer, sturdier look, and if cut across the midrib would generally resemble a wide letter V, the midrib being at the bottom of a channel when seen from the upper sides; one or two very large leaves may occasionally assume the same habit as the other kind; the leaflets are also much narrower and more pointed, the form resembling that of a racing cutter, while that of the other is like that of a fishing smack; or the first is in foliage like the rose-flowered Horse Chestnut, or the leaflets like the Spanish Chestnut, while the good variety is like the wild Blackberry, only not quite so wide in the leaflets. The worthless kind will extend its covering 4 or 5 feet in a season when the plant is large; the other is not nearly so rampant. I have never seen it increase more than 2 feet, but my experience only covers plants in town gardens, where they were growing at a disadvantage. It is also much more slender in growth, that is, the stems are thinner and weaker; the plant itself, not producing the long straggling growth of the other kind with leaves

at distant intervals, is much more compact-looking, that being the chief difference visible at a casual glance.

"The only way to avoid getting the wrong sort is to order plants from a first-class nursery which has a world-wide reputation to lose."

SCRAPS AND QUERIES.

VARIOUS QUERIES.—M. Newton asks:—"If it is not intruding too much on your time and space, I would like to ask a few questions. 1. Will the Pear grow on the Osage Orange; has it ever been tried to any extent? 2. How is artificial fertilizing best performed? 3. What is the best soil and when the best time to transplant the *Hydrangea paniculata grandiflora*? 4. Will seed of the rose grow?"

[1. Only those species that are closely allied botanically will graft together. The Osage Orange and the pear are so widely separated that no one has probably tried to make them grow. 2. Artificial fertilization of flowers is best performed by cutting off the anthers of one flower before the pollen appears, and then taking the pollen from some allied species, and placing it on the stigma of the flower to be fertilized. Very often, as in the lily, the flower has to be cut open just before it expands, to get the anthers out, and the pollen of the strange flower is to be applied the next day; or after if strange pollen be applied at once to put more on next day. 3. *Hydrangea paniculata* is a very easy thing to transplant, and it will thrive in any garden soil. It can be moved any time in the year when the earth is not frozen. 4. Roses grow very well from seed soon as they are ripe, or in the Spring, only that in the last case it remains a year in the ground before it grows. It is in this way that new varieties are generally originated.—ED. G. M.]

ROSE MADAME OSWALD DE KERCHOVE.—We have from Mr. Schwartz, of Lyons, a chromo of the above rose, which, if correctly painted shows a yellowish buff tint among the rosy ones,—a sort of Saffrano character, which so far as we know is wholly novel among hybrid perpetuals. There is also a slight canary color on some of the petals.

SLIPPING OF EARTH FROM SIDE HILLS.—F. W., Newark, N. Y., inquires:—"Please tell me through GARDENER'S MONTHLY, or otherwise, what to plant on a side hill to prevent the earth

from sliding when the frost leaves the ground in the Spring?—soil clayey.”

[A thick planting of the Japan Creeping or Evergreen Honeysuckle would be effective, unless the earth came down in tons at a time, when stronger rooting plants may be required;

but we suppose the slipping to be no greater than this Honeysuckle will prevent.—ED. G. M.]

NEW COCKSCOMB.—Messrs. Nanz, Neuner & Co., of Louisville, send a specimen of a variety which has buff and crimson in its “comb.” It is a very large thick head, and over a foot wide.

GREEN HOUSE AND HOUSE GARDENING.

SEASONABLE HINTS.

There is not much requiring special care in the greenhouse. The Camellia is very apt to drop its buds if the atmosphere is too dry; but generally dropping follows any check to the roots by which the regular flow of moisture to the bud is stopped. This may be either too little or too much water; if too little, of course there is not enough moisture; if too much, the fibers are liable to have their points injured, and thus are unable to draw moisture to the bud. Usually the last bad results follow from over-potting. With a large mass of soil, water is apt to not pass readily away, when the soil “sours” as it is termed. A pot full of roots will seldom drop the Camellia buds for any other cause than too little water.

A great enemy of the Camellia is the red spider. The leaves indicate its presence generally by a brown tinge, when the pocket lens which every gardener of course carries, readily detects. All plants are more or less liable to these insects, as well as the green fly, mealy bug, and scale. The best way to keep them down is by a free use of the syringe in fine days, using water in which some sulphur has been strewn. Tobacco smoke is still the best cure for aphids. Scale is a very troublesome pest; water heated to 130° is still the best. This injures very tender leaves, but the scale is rarely on such, it usually keeps to the branches or in thick leathery leaves.

Tree Carnations,—these are now indispensable winter flowering plants, want a very light place to do well. They do not generally care about very large pots—about five or six inches—but they are very much benefited by rich manure water.

The Calla lily is now extremely popular. This also loves light. It must have a good sup-

ply of water, and good soil to flower well.

Towards Spring the Cineraria comes in remarkably well for cutting. This is a “queer” plant. It is one of the easiest to suffer from frost, and yet will not do well in high temperature. It also requires much light, and to be very near the glass. So also of the Pansy and Violet, although some frost will not hurt these.

If Pelargoniums are wanted to flower well next May and June, they should be attended to and grow well through the winter. They want a rather warm house to keep them growing, and should be pinched back as they grow, to keep them bushy.

A good supply of young Fuchsias should be coming on now; repot as their roots fill each pot, let them not want moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well decayed manure, and well drained with charcoal, suits them admirably.

It is too soon for Window Plants to get into trouble yet. They generally look well till after New Year, after being brought in during October. But soon, over-watering, or under watering, or the effects of minute insects, or waste gas from the burners, or sulphurous gas from the heaters or stoves will begin to tell and there will be trouble. As these are about all the difficulties in window-plant culture one soon learns to avoid them; and indeed nothing but a real love of window-plant culture will enable any one to learn. It is what the best of magazines, with the smartest of editors cannot teach. It is a good season to watch for coming troubles. As soon as the slightest thing seems wrong, search at once for the cause of the trouble. They are often, but small, and easily remedied at the outset.

COMMUNICATIONS.

HINTS ON THE CULTIVATION OF CHOICE GLOXINIAS.

BY MR. FYFE, MOUNT AUBURN, MASS.

The Gloxinia has now become a general favorite with all lovers of flowers, and the vast number of fine varieties raised from seeds of the first, of the upright sorts Fysiana, has created quite a stimulus for the cultivation of this fine herbaceous stove plant; a few hints therefore, in the MONTHLY may not be out of place for the successful cultivation of this fine exotic. After flowering, the bulbs should be sparingly watered, and when completely at rest the pots containing them be laid on their sides to secure them from any water lodging on the crown of the tuber. The most desirable place for storing them during their season of rest is in the vicinity of hot-water pipes or common smoke flues. On the return of the growing season when they show signs of returning life, they must be turned out of the pots and the old soil shaken from the tuber, still retaining the fibrous roots of the previous season. They may then be potted in clean pots in the following mixture of equal parts of loam, peat, leaf mould and sand well mixed; the leaf mould may be the greater portion of this compost, as in their native country, which is chiefly equinoctial America, they are found growing in the woods where the earth is little more than a bed of rotten leaves and bark. The whole of this beautiful natural order Gesneraceæ containing Gesneria, Codonophora, Penteraphia, Sinningia, Besiberia, and Gloxinia may be successfully grown in the above mixture; but I find in regard to Gloxinia, that when grown for a number of years the tubers get worn out, and the plants naturally get stunted and shabby and covered with rust. I would therefore suggest that a yearly supply be raised from seeds selected from the finest of the sorts contained in a collection, and in view of being successful in getting a fine brood of hybrids, let all the finest sorts be placed close together so that the flowers may be in close proximity to one another; in this way they have every chance of being impregnated, one with the other, and in view of raising new varieties let the pollen of Gesneria, Sinningia and other genera as nearly allied be dusted on the stigma of the plants chosen for impregnation. It may seem strange to some of our successful hybridizers of plants

when I state the circumstance that the parent plant of Gloxinia Fysiana was profusely dusted with the pollen of Digitalis purpurea, Lophospermum scandens, Datura Wrightii, Brugmansia sanguinea. The former two species belonging to the natural order Scrophulariaceæ and the latter two to Solanaceæ; this may account for its taking the erect form of inflorescence which several of the genera of these orders have a part. In thus relating my experience in the interesting study of the hybridization of plants, I am aware that I am treading on dangerous ground, and that it is a subject fit for a genius such as a Jussieu or a Lindley to unravel. [The Editor dissents of course.]

In following out my hints on the cultivation of the Gloxinia, in raising a stock of young plants, let the following suggestions be followed out. Having procured some seed pans, let them be drained with broken pots, and let the drainage be covered with some of the siftings of decayed leaves; the pans may then be filled with the mixture recommended for growing the plants to about one inch of the top of the pan, filling the rest of the space with some of the same soil to within one-half inch of the top; this last addition of soil must be very fine, having been put through a fine sieve. When all is compressed and firm, the seeds which are very small may then be rubbed on the surface of the pans, and if any covering be added it must be of the slightest nature and very fine,—something like dust. As the seedlings progress, and when they can be handled, they should be removed from the seed pan into other prepared pans or boxes, putting them in promiscuously, giving space to increase in size, placing them in shady frames on a damp surface. When they arrive at a considerable size they should be removed singly into pots and then shifted from size to size, potting with the same soil recommended above for large plants, until they arrive at maturity, which if carefully attended to may be in the Fall of the same season. They may as they progress be copiously supplied with manure water, filtrated from any sediment, as I have used water strongly impregnated with night soil, to great advantage. I have now only to add a word or two in regard to the treatment of the plants until they arrive at full maturity and in full bloom. They should never be placed on wooden stages, as I find that these receptacles are not fitted for plants of any tribe in this arid climate, the wood often getting so warm.

that you can scarcely touch it with the hand; the natural consequences are that the heated surface of the wood acts on the foliage of the plant, and as it were, sucks all the substance out of the foliage. I have been consulted with about the rust that overtakes the Gloxinia, and have always given the opinion that this is the first cause of the disease. If any one will look at the under surface of the leaves of a Gloxinia that is infected with rust he will invariably find that the leaves so infected when seen through a glass have the seared appearance of being placed above some heated surface. This is I think the first cause of the disease that attacks this favorite tribe of plants, and the natural consequence of the loss of the vital principle is the attack of thrips and red spider. The leaves are also of a lanuginous texture and should be carefully guarded against exposure to the rays of the sun when suffused with moisture. In concluding these brief hints on the cultivation of this beautiful exotic, I may state that some fine specimens of seedling Gloxinias were to be seen this Summer in the fine collection of plants grown at the residence of Professor Sargent, Brookline, which Mr. Sanders, the gardener, informs me were treated much the same as recommended in this article, having been always kept in rather shady situations, and always on a damp surface; the effect of which resulted in large plants with beautiful foliage, having erect flowers beautifully marked in the throat and limb of the corolla.

Since writing these brief hints on the cultivation and hybridization of the Gloxinia, I have seen a notice of Gloxinia Fyfiana in Mr. Burbidge's celebrated work on propagation and hybridization of plants, in which he states that it is supposed to be a cross between speciosa and caulescens. I do not wonder at the uncertainty of its origin, as I have never stated until now how the parent plant speciosa was treated, and which I have no doubt will be criticised by many readers of the GARDENER'S MONTHLY. Mr. Williams is quite correct in his statement of it being the first of the upright varieties, as he is well acquainted with the floriculture of the West of Scotland, being in the habit of exhibiting his fine collections of stove and greenhouse plants at the meetings of the West of Scotland Horticultural Society. The date is also correct when it was raised, I having at that time the charge of the fine collection of stove and greenhouse plants contained in the gardens of

the late Thomas D. Douglas, Esq., Rothesay, Isle of Bute.

I may here state that I was rather unfortunate with the disposing of the plants, my employer having given me permission to dispose of it for my advantage. Having been called on to officiate as a judge at a meeting of the Dunoon Horticultural Society, and having a plant of Gloxinia Fyfiana in fine flower,—a very large plant, circumference about four or five feet,—which proves what the Gloxinia tribe can be grown to from rich feeding. I took it with me for exhibition, and for which I received an extra prize, there being nothing to equal it in the fine collections competed for that day; it was the admiration of all present. It was unfortunately left in charge of the guardians of the society during my absence at the dinner given by the society to the judges; and during that time some one had managed to pluck a quantity of leaves from it, and before the end of the season plants were sold for a sovereign each, (or at least, if my memory does not deceive me, in an amazingly short period from the time the cuttings were taken) by some of the London nurserymen, and figured by the late Sir William Hooker in the *Botanical Register* with the highest praise by that distinguished botanist.

In conclusion I cannot help quoting the words of that eminent botanist the late Professor Lindley. He says: "Hybridizing is a game of chance played between man and plants. It is in some respects a matter of hazard, and we all know how much more excitement is produced by uncertain than by certain results. What increases the charm of the game is that although the end of it may be doubtful, yet a good player can judge of the issue with tolerable confidence, and that skill and judgment have in this case all their customary value."

EDITORIAL NOTES.

TORENIA BAILLONI.—The *Torenia Asiatica* has long been known as a very valuable plant in our greenhouses, its drooping habit and profusion of blue flowers making it useful for so many purposes. Some time ago we called attention to a new *Torenia*, *T. Bailloni*, which had flowered in the Belgian gardens. This was described as of a yellow color. We have just had the pleasure of seeing this beautiful plant in flower in the greenhouses of Edwin Lonsdale of Germantown, and it proves to be all that has been

claimed for it. Its habit of growth is very much like the *T. Asiatica*, and the flowers are of a deep yellow. It is something good.

CAPE PLANTS.—The singularly beautiful class of flowers known as cape plants are very seldom seen; most of them flower in the winter time, but require only that the temperature should be kept above freezing. It requires some art to keep them healthy through the summer season,—but then it requires some art to raise celery or turnips. The one has to be learned and so has the other, but it is no more difficult to learn about the one than the other.

TUBEROSES.—When any one is disposed to regret that "we cannot have nice flowers as they have in Europe," let him look at his tuberose, and then read the following from the *Gardeners' Chronicle*: "The cultivation of double tuberose for their flowers in this country is a remarkable branch of horticultural enterprise. A large number of tuberose are annually imported for this purpose from France, and some clue may be obtained to the quantity when it is stated that Mr. John Reeves, florist, Acton, imports 30,000 annually; but then he has flowers almost all the year round—last year with an intermission of six weeks only, this year he hopes to have an unbroken supply "all the year round." The first batch is potted singly in large 60-pots about Christmas and earlier, and there are successional pottings till May, fresh batches being introduced as required. The bulbs potted at Christmas and onwards are started into growth in a brisk bottom-heat and shifted into a 48-pot as soon as required, when they have grown to a height of twelve inches or so, and then pushed on into bloom. The later potted

roots are put into a cold house to flower after being gradually hardened off. The bulbs potted in May are placed in a cold frame and during summer fully exposed to the elements; by September some of them are throwing up their flower-spikes, and as they continue to do this, introduced into heat to expand their flowers. There can now be seen in Mr. Reeves' nursery a considerable number of plants in bloom, and still in the open air a very large number coming into flower. The tuberose appears to do well in any light soil, and there is no professional secret of this character in the cultural process. At this time of the year the spikes carry five and six and more of the richly fragrant flowers, but as the days shorten and the fogs abound, the latter cause the topmost buds to decay, and Mr. Reeves states that in the depth of winter one or two flowers only will be perfected. It has been asked will the tuberose flower in the open ground around London? It might do so if grown on in pots and turned out early in summer as soon as warm enough to do so, but if planted in the open ground it is more than doubtful if the flower would be produced early enough to escape the damp and cold of autumn."

EUPATORIUM TRISTE.—This we before catalogued under the name of *Hebeclinum macrophyllum*, under which name we received it, but find that it is properly *Eupatorium triste*. It is a free, vigorous growing plant, bearing large trusses of white flowers during January and February, filling in the gap of this class of flowers which is left by most of the others blooming either too early or too late. It will be valued as an addition to our winter-blooming plants.

—Peter Henderson

FRUIT AND VEGETABLE GARDENING.

COMMUNICATIONS.

PARIS GREEN ON STRAWBERRIES.

BY G. S., "THE MAPLES," NEAR LEXINGTON KENTUCKY.

As you so kindly published in your valuable magazine my strawberry feat, perhaps you will further indulge me in a little more bragging. I

am prepared, sir, to measure crowns with the champion man on strawberries, whoever he may be. I am now setting Monarch of the West ground layers, that are simply immense. They stand fully a foot in height, with great spreading foliage. Weeks ago I measured a Seth Boyden ground layer, transplanted from an April set plant, and found it 19 inches across. But my

ruling desire, in this communication is to "sound a note of warning" on the use of Paris green for exterminating that pestilent foe of the strawberry, the grub. I observe one of your correspondents employed a mole to capture the enemy with—decidedly an "elevating" result. I used a solution of Paris green, and killed my splendid Sharpless outright,—Mr. grub not heard from. A veteran fruit grower started me on this work of devastation. He recommends as a preventative, to dip the roots in a strong solution of Paris green, before setting. My candid opinion, founded on high authority, is that it would effectually destroy the plants before the grub could find them. I poured my solution about the plants.

Scientific experiments have proven that arsenical preparations, in certain proportions, are destructive of plant life. Professor Freytag, from the actual effect of sulphurous and metallic fumes of the Freiberg Metallic Works upon vegetation, discovered that solutions containing only .80 per cent. arsenious acid, killed plants placed in them. Prof. Wm. McMurtrie, chemist of the Department of Agriculture at Washington, in a series of careful experiments demonstrated conclusively that 500 milligrams of Paris green in the soil is injurious to vegetation, and that as the arsenical compound is increased so the injury is increased. From an experiment of my own, a concentrated solution of Paris green is innocuous to worm life when drenched with it. Paris green, in solution, within certain limits, may be used with safety. Better, I think, to dispense with it altogether. It has killed more than it has cured, from carelessness. As to the grub, he is a tough customer, and must be hunted down and sacrificed remorselessly. His presence is first detected by the curling and withering of the leaf. Remove the soil very carefully from about the plant and kill the grub feeding at the collar of the root. Hoe the alleys very circumspectly, from time to time, to destroy grubs that may be lurking near the plants. "An ounce of prevention is worth a pound of cure." Many remedies are given to prevent the ravages of worms and insects upon vegetation, but do not rely too much upon them. Search, search, search,—kill; would be my summing up. Begin in time. Beat time at his own game. I write with the fervent hope of aiding some fellow-lover of the *Fragaria vesca*, and trusting that I have not imposed an unmeaning task upon you.

EDITORIAL NOTES.

GIBSON'S LATE PEACH, from Mr. Charles Black. These did not arrive in very good condition, but enough were fit to show that the variety may be valuable.

THE POCKLINGTON GRAPE.—We had the opportunity of seeing a plant of this grown near Philadelphia the past season, and find it to be a very free, healthy grower. White grapes of first-class quality are scarce. From what we have seen of this, it promises to be a good addition to the well known kinds we have.

THE JEFFERSON GRAPE.—We are glad to find that one by one the valuable seedlings of Mr. Ricketts are coming in the market. Mr. Burrow has taken in hand to work with the Jefferson, a bunch of which we have now before us. It is said to be a cross between the Concord and the Iona, having the healthy foliage and growth of the former, and, as we can testify from the bunch before us, all the delicious flavor of the latter. It is a very handsome bunch, and we should judge from its firm skin will be a valuable shipping grape.

CALIFORNIA PEARS.—These are now being shipped extensively from California to Chicago.

GRAVES' PEACH.—This is said to be a very early good Peach from Missouri, and "believed to be a hybrid between an Apricot and a Peach," but the intelligent pomologist need not let this opinion prejudice him against whatever real merit the variety may have.

WATER SUPPLIES.—The London *Gardeners' Weekly* says:

"The supply of water to great towns is fast becoming what is termed a 'question of the day.' The first and principal object in supplying towns with water, as well as in removing town sewage, appears to be to fool away millions of money to the impoverishment of all who have to pay. It appears not yet to have dawned on the public mind that on every roof there falls enough water for the domestic needs of those whom the roof shelters. A few gardeners are so wise as to catch rain water, but no one thinks of doing the same for the good of the household. And yet rain water is the best water for every purpose, whether for cooking, washing or drinking, and may be obtained in plenty by the simple process of catching and saving it."

The suggestion is as valuable here as in England. Few know how easy it is to build water-

tight cisterns. The chief objection is that it is a labor to pump; and water from the public works will run into one's houses by its own weight. But in many cases there are pieces of high ground not far away from the house where at a very small expense a "roof" could be built, and the water collected there, the pipes running down to the building. Certainly many persons could be wholly supplied by water at much cheaper rates than the public works offer, and with less labor than the common pump,—though of course the vast majority are not so favorably situated.

SCRAPS AND QUERIES.

ARTIFICIAL FERTILIZERS.—J. R., Brooklyn, N. Y., writes: "If consistent with your duty to advertisers, I would like information as to the kind of artificial fertilizer that can be used advantageously on a small garden, clay loam, growing fruits and flowers only—in place of stable manure which is unpleasant, and not easily procured. I mean a kind that can be used year after year. If no answer appears in the MONTHLY I shall judge that to answer would be a violation of journalistic propriety, and shall depend upon experiment."

[Where the editor is also proprietor of a publication he may not like to praise a stranger's article over one who advertises in his paper. In the present case the editor has no interest whatever in the advertising columns, and does not know what is in them till he reads them in print. Still we are not able to help our correspondent much, because the advantages of artificial manures are wholly to be learned from experiment. On light sandy land salt is found an excellent fertilizer. Guano does better on heavier soils. The best advice to offer our correspondent would be to try small quantities of different kinds first, and note those which seem most effective on his grounds.—ED. G. M.]

MR. BLACK'S PLUM.—Mr. Bassett inquires: "I see Chas. Black calls his plum a Chickasaw. Is it a Chickasaw? I have the impression that it is one of those that grow in the Northwestern States, and did not suppose they were of that variety at all."

THOSE COPYRIGHTED CHERRIES.—Mr. Weir writes: "In answer to Eugene Glenn, of Rochester, N. Y., in the October number, I may be allowed to say that to take out a copyright, one

has to print the title-page and send it with the proper fee to the Librarian of Congress. My publisher had taken out several copyrights; had the law before him, and complied with it to the letter, to wit: he printed the title-page properly, bought a post office money order in favor of the Librarian, and forwarded it. By some snarl in the 'red tape' in Washington, this P. O. M. O. was not delivered for near three weeks, and we at this end of the line had to trace it up, and I now have the certificate of copyright. As soon as the money was mailed we went to work on our little book and at the end of a week we had some proof copies printed, expecting our certificate of registry by each mail, and being in great haste to get our venture before the world, I mailed a few copies to the leading papers and to eminent horticulturists; this was not strictly legal. We also sent copies to Librarian of Congress the second time, but not in time for them to reach him before the certificate came to hand.

"Well, I have produced from seed a large number of cherries better adapted to our wants here in the Northwest than any of the old varieties, as twelve to fifteen years have proven, and of quality far surpassing any varieties of cherries that we could grow here heretofore, have described them and given them names and numbers, and published all in a 'sort of patent medicine pamphlet,' and copyrighted the whole combination. Is there anything criminal in this? I have only chosen after due deliberation this plan of offering my property for sale to those who wish it on my terms. If they do not wish to buy there is no compulsion about it. I do not purpose to claim any more rights under my copyright than the law gives me, but neither Mr. Glenn nor even the Librarian of Congress are the final authorities to pass on the law and tell me what my rights are? We have courts for this purpose. If the copyright is of no value whatever, I cannot see that I am inclined to ask more than the exclusive right to a share of the original stock to propagate from is worth to one nurseryman in each State. I did not start out with the idea of catching gudgeons or swindling any one. I merely offer a commercial venture to commercial men, and there is no danger of this class of men being severely bitten even if Mr. Glenn had not given them such laudable warning.

"My first and prime intention has been in making a start to the end of inclining people towards

the belief that a man's own independent productions were not public, but his own private property, at least until he saw fit to donate it to the public.

"My 'little sort of a patent medicine kind of a pamphlet' was gotten up very hurriedly when I was suffering from malaria, and I am not at all proud of it as a literary venture, but in its sixteen pages of closely printed matter it gives the result of twenty years close study of the cherry in this climate, with some facts that may be of general interest."

[We have stricken out some parts of this letter as personal to Mr. Glenn, because there was nothing in Mr. Glenn's communication to warrant them. Mr. Wier stated that something was done which Mr. Glenn found was not done, and he said so. Mr. Weir shows very good reason why it was not done, but Mr. Glenn could not know this, and was therefore quite justified in his remarks or we should not have allowed them to pass. Mr. Weir is entitled to show why, what he thought was done had failed, and we cheerfully grant him this hearing.—ED. G. M.]

HOTHOUSE GRAPES.—Every now and then we come across some nice specimens of native grapes, which make us wonder what people want with the foreign kinds from under glass. But when such nice things are received like some before us from Mr. Huidekoper, it is clear we have to live a long while before we can dispense with good hot house grapes. The notes made by Mr. Huidekoper on the merits of the different kinds meet our own views:

"1. Buckland Sweetwater. This with its golden clusters of compact fruit is the handsomest of all the vines in the graperie. 2. Golden Hamburg—said to be a hybrid of same parentage, is very like the above. It exhibits occasionally a soft berry or two in an otherwise perfect bunch without an apparent reason for it. 3. Black Hamburg. 4. Fintindo, a variety I take it of B. Hamburg; ripens about the same time. 5. Golden Champion,—probably the largest in berry of all the grapes. Not a clear amber when ripe; bunch large and stout. Fruit with me cracks some, but this may be owing to rain affecting at times the corner of the vinery where it grows. 6. Dutchess of Buccleugh. A rich Frontignac-flavored variety, clusters a foot or more long, slender, and not always filled out well with fruit; cloudy amber colored; hangs well. 7. Ioanec; rather small white fruited variety,

introduced by Mr. Campbell; ripens among the earliest; not much flavor, crisp, and hangs well. 8. Muscat of Alexandria. 9. Duc of Malakoff; amber colored, somewhat tough; large bunches with long shoulders. 10. Gros Coulard; a white grape introduced by the late Mr. Prince; very early to ripen; medium size, not as large fruited as 'gros' would imply. 11. Seedling; pretty and pulpless, probably of Buckland; color white. 12. Rose Chasselas."

LATE PEACHES.—It is a matter of surprise that those who live in cities do not turn their attention to the culture of a few peach trees oftener than they do. We know of no kind that deserves so well the appellation of a city fruit, as the peach. We are moved to these remarks by the following, from Mr. Lorin Blodgett, who has already done so much to make known the pleasure city people may enjoy by peach culture in small places:

Philadelphia, Oct. 17, 1879.

"I picked the last basket of peaches this morning, leaving my peach forest of thirty trees as green as it was in August, yet having yielded the heaviest crop I have yet grown,—sixty bushels at least,—and giving us more than we could use constantly since August 15, over two months. The protracted heat of every day since Oct. 1st, has injured the rich yellow clings of this month; but I send you three or four of each of the two latter. The best were taken two weeks ago from a tree thirty feet high, on the top of which were peaches weighing six to seven ounces. I picked a few with a sack on the end of a pole,—myself on a fourteen foot ladder,—and sent them as a greeting to Hon. W. Puleston, M. P., and sample of American fruit growing. Of the ten full successive crops of my older trees, the only difference has been to make the last crop the largest and best, and of a half dozen new seedlings bearing fruit this year I find all good, though none superior to the larger trees. I believe in breeding peaches as much as I do in breeding Durham cattle or Merino sheep, and having followed it faithfully now for more than forty years, or since 1838, and always with at least reasonable success, I beg to recommend it to others; particularly in this marvelously rich and prolific climate. Select stones of the best peaches and fruit them in groups, selecting the best, and planting again as often as possible. And feed your peach trees as you would fine cattle, or fine horses."

NATURAL HISTORY AND SCIENCE.

COMMUNICATIONS.

BLACK RUST ON VERBENAS.

BY PROF. T. J. BURRILL, CHAMPAIGN, ILLS.

Read before the Illinois Horticultural Society.

This is in every way different from the mould or mildew found on the leaves of the same plant and which was the subject of a communication to this society some years ago. Yet different in origin and appearance as the two diseases are, they have been frequently confounded and sometimes by those who could and should have known better. The mildew gives the leaves the appearance of having been dusted with a white mealy powder, which in fact is very nearly the truth. The white material is composed of the threads and conoidal spores of a fungus named long ago by Schweinitz, *Erysiphe verbenæ*, but which is most probably *Erysiphe communis*, (Schlecht), found on very many other plants. The black rust is found on house-grown plants, almost exclusively on the youngest portions of the vegetation—the terminal buds and rudimental leaves. These have a purplish tint and a stunted appearance; growth nearly ceases; there is very little deformity, but simply a dwarfing. It has been considered contagious and beyond remedy, other than the complete destruction of the plants in order to exterminate their enemy. Hundreds of dollars' worth have thus been sacrificed more than once in our country. Disappointment has intruded upon many a lively anticipation of the brilliant effect to be produced when the verbenas had grown larger and become full of flowers.

Peter Henderson long since asserted the disease to be due to a mite which creeps over the surfaces, and by puncturing and sucking, causes the difficulty. He rudely figures the mite in his book on Practical Floriculture. Since this was published much discussion, pro and con., has been indulged in on the subject. Charles Henderson, son of the former, repeated the mite theory in the GARDENER'S MONTHLY last year. Others were skeptical, and to convince them, Henderson, junior, sent specimens of the affected leaves to several persons, including Drs. Farlow

and Riley and the editor of the GARDENER'S MONTHLY. However, it seems no one found the microscopic mischief-makers. Perhaps they instinctively eluded the intensely scientific eyes turned towards them. Again the two diseases of the plant were confounded and answers returned accordingly. But Henderson is correct, though his figure is not. The black rust of the verbenas is assuredly caused by a lowly organized member of the animal world, belonging to the order Acarina, family Acaridæ and according to some systematists' classification to the sub-family Tyroglyphidæ or cheese-mite group. Its generic (perhaps) and its specific names are yet unheralded, but will be announced some time soon in an appropriate place and manner. After careful examination I am led to believe that Henderson did not clearly identify the particular species causing the disease in question, but probably saw them as well as others, which may or may not have been injurious. At any rate this is the only explanation I can make of his statements, as the figure alluded to is widely different from a true representation of the real verbenas pest. There is no other account of them, as far as my information goes. The following is from personal observations during the year now closing:

The verbenas mite is too small to be seen without a magnifier, being one-hundredth of an inch long by one two-hundredth wide across the middle and widest part of the body; it is pale-yellowish white and sluggish in its motions; the legs and feet are unlike any described species and differ among themselves. The first pair are terminated by a single claw and double vesicles, while the second and third pairs have double claws and single vesicles, and the fourth pair have neither claws nor vesicles, but taper into a long bristle. They propagate their kind by eggs laid on the leaves, and most probably pass their whole life in this situation. They infest abundantly, plants growing in the open ground throughout the summer and in such situations work upon older full-sized leaves as well as the tender extremities of the plant; they rarely, however, are met with on the upper sides of

such leaves. As long as the plants themselves survive in autumn the mites may be found living and working—this year (1878) as late as the first day of December, at Urbana, Ill. Greenhouses and cold-frames are very liable to become stocked with mites upon plants taken from the open ground in autumn. This is worthy of especial notice and should be thoroughly understood by those to whom the black rust is such a bugbear and the source of so much loss, estimated in dollars, as well as by the mental condition of him who doggedly fights against unknown but certainly existing foes. Besides the purplish color exhibited by the foliage, which is the principal evidence of the presence of the mite, older leaves have a scaly appearance from the death of patches of the epidermis and adjacent tissues; the surfaces become rough and the leaves look old, and are often ragged and upon handling stiff, liable to break. Badly affected plants give no satisfaction in the beds, though they struggle for life; the foliage is unprepossessing and the flowers few and small.

The ordinary "red spider," a true mite, though distantly related to our species, thrives only in warm, dry situations. Out of doors its worst deeds are done during the periods of very hot dry weather, but this does not seem to be the case with the verbena mite. We have seen that it continues its unwelcome services long after sharp frosts have occurred in autumn, even after the ground has been slightly frozen. Most probably it passes the winter under the shelter of any material on the surface of the ground, and is ready to begin again its work as soon as plants start in the spring. So far I have found it on nothing but the verbena species but sometimes as numerous on wild varieties as upon the cultivated plants. The common weedy wild species of verbenas, everywhere abundant enough, could be easily spared, and if the subject of our sketch will take notice of this, its reputation will hereafter be much better, now that it is really known at all, than if it persists in choosing the object which we animals of a higher grade, especially appropriate to ourselves.

For the greenhouses it will doubtless be wisest to practice prevention rather than cure, admitting no plant which from its appearance harbors the scourge; but cure is certainly not impossible. Dipping repeatedly at intervals of a day or two in hot water at 120° Fahrenheit must be useful in ridding them of the mite. A half pint of coal oil in two or three gallons of water, well

mixed by rapidly drawing up and discharging with force from the syringe the contents of the vessel into itself and then quickly refilling the syringe with the agitated liquid and freely applying it to the plants, will not injure the vegetation, but will kill all kinds of insects which thus infest plants. As these mites suck the juices rather than bite the leaves, poisons, like Paris green, etc., cannot be relied upon. Thrifty-growing plants can much better withstand the injuries caused by such enemies,—hence are often supposed to be free from the disease when in fact they bear its cause as abundantly as their stunted neighbors. Having freed ourselves from the current opinions that this black rust is in the constitution of the plant or comes from improper ventilation or any mismanagement of the houses, aside from that which prevents vigor and robustness of plant growth, we may place more faith in the success of proper treatment of the plants and more hope in the good that is to follow close and full investigation.

CURIOUS FUNGI.

BY MRS. D. W., SUMMERVILLE, S. C.

Reading an article on fungi some time ago, I remarked that one with which I am unfortunately too familiar is not mentioned, and I think it worth describing.

The negroes in our pine-land, Summerville, S. C., have various names for it, but its technical name I do not know. The first time I met with it about two years ago, I was standing by a patch of oats just peeping above ground, and was attracted by a round, bright, scarlet object not unlike the back of a hand, with the fingers bent under, three in number; the fingers were beneath the ground, of a beautiful rose color tipped with pure white, and these again held to a leathery, round, whitish ball, with rootlets not unlike a French truffle in size and shape. This underground ball I did not then perceive, as the fingers had detached themselves from it as I drew the thing out of the ground. There was something indescribably cold and disgusting in the touch of it as it lay for a moment on the palm of my hand while I examined it; but how can I describe the horrible stench that in a second pervaded the atmosphere around me; it was intolerable, and I hastily dropped the cold flesh-like object and hurried away from the spot. On the following day having mentioned the facts to a friend, we returned to look for the fungus; the smell, so nauseous, still remained, but we could

nowhere find the cause. Since then, in gardening, I frequently have found these curious fungi, always growing out of a sandy peat.

Like the fairy tales of old, some very interesting fungi suddenly grew up at the foot of a tall pine in our garden; they were about eight inches high, and in form like an English snow drop, each silvery stem bearing a delicate bell pendant, slightly fringed, and lovely in the extreme; they grew in a little group. It was quite early on a frosty morning when I discovered them. Later in the day when my grandson came in from school, I told him of the pretty things, and took him to look at them; they had totally disappeared, and I have not found any more like them.

AN ABNORMAL SNAP DRAGON.

BY P. K. SULOFF, PHILADELPHIA.

I noticed an article in a late number of the GARDENER'S MONTHLY on abnormal flowers which induced me to send you the enclosed flower of the *Linaria vulgaris* which is a very good specimen of the abnormous form. I found it in one of the neglected portions of Fairmount Park. The two edges were joined, forming a tubular flower. I thought it might be a specimen of the variety *Peloria* described by Darlington. I searched for others in different parts of the park, but did not find any, so I concluded this was an abnormal specimen. It has one stamen and one spur more than the variety *Peloria*, as described by Darlington. This you will observe has six stamens and six spurs, only one pistil and one ovary. I did not dissect the ovary to learn whether it contained the normal number of cells. The reflexed parts of the upper lip are only present, which I have pressed down in fastening to the paper; there is no trace of the lower lips, the calyx has the normal number of sepals,—one you will observe has abnormal growth at its base resembling a part of the corolla tube. I have secured it to paper in a rather rude manner so as to preserve the parts from being injured.

EUPATORIUM.

BY MISS M. EVELYN HUNTER.

There are many varieties of *Eupatorium* indigenous to America, but none rival the *Eupatorium perfoliatum* in its medicinal powers. The plant which gave name to the very extensive genus, of which the Bone-set is a species, are

dedicated to Eupatos Mithridates, who is said to have used a species of the genus in medicine. Pursh describes twenty-seven as natives of North America; and others will be found extending beyond the tropics as far as Peru and Paraguay.

The Bone-set, or Thoroughwort, is perhaps one of the most common of all the species inhabiting our country; it is found in meadows, on the margins of brooks and in damp woods. It is peculiar to North America, and easily distinguished from all other species. Many of the species are from five to seven feet high. The red-flowered species bloom with the white Bone-set, and decorate our autumnal landscapes with the profusion of their red and white flowers, and by the abundance in which they are everywhere met with. These plants are all plain except the *E. coelestinum*, the beautiful blue flowers of which have given rise to the appropriate specific name; it is never found much exceeding a foot in height, but occasionally in very rich ground, rather shaded from the sun, you will find a plant a foot and a half high.

Some months ago having seen the following description of a plant in Mr. Vick's catalogue, I supposed it was something entirely new: "A Mexican flower of a brush-like appearance, not showy in the garden, but prized by florists because it bears a great many flowers and keeps in bloom a long time, and is therefore desirable for bouquet-making. It is well to start the seeds under glass, and transplant to the flowering bed." This description was headed "*Ageratum*." I purchased the seed, and to my astonishment found myself the possessor of many young plants of the *E. coelestinum*. Nevertheless I scattered them around among my friends that we might all have this wonderful Mexican flower, and in March we had some rare heads of the "*Ageratum*," for even an old flower seems better when known by a new name.

PENCILINGS FROM COLORADO.

BY J. L. RUSSELL, DENVER.

Taking a week's vacation the first of Sept., I was only too glad to spend it among those romantic hills and valleys of the Rocky Mountains, where one's mind never tires of admiring the endless variety of forms which nature presents in those hills. We take the train from Denver and pass through a level tract of farming country for about fifteen miles, when we enter the Platte Canon, where mountains of rocks rise two and three hundred feet on either side of us, and in

most instances covered to their summit with vegetation of every conceivable shape, including many pretty flowers. So much so that one is strangely tempted to get out but for a moment to collect a few specimens—but no, we have not that moment at our own disposal. So on we go, thinking sometimes we would be demolished against the huge rocks ahead of us; still we pass everything safely. Dome Rock, about twenty or thirty miles up the canon, is a curious spectacle, strongly resembling the dome on the custom house in Baltimore, save much larger. We are getting up now pretty well in the mountain and pass through some very pretty little valleys, whose green turf is spotted throughout with campers' tents, who are enjoying the pure mountain air at their ease, away from the bustle and turmoil of life. Leaving them to their pleasure, we pass on till we reach and enter the famous Mule Shoe Bend, which measures from point to point seven hundred feet, and is about three miles around. After turning the bend we begin a very steep ascent, rising to the celebrated Kenosha Summit, which experienced travelers have pronounced the greatest piece of engineering they ever beheld. Passing on a few miles farther, we enter one of the most beautiful spots it has ever been my pleasure to witness—the South Park. The railroad passes nearly through the center of the park which spreads out on either side of it several miles. The park is mostly level, till nearing the mountains, when it begins to rise and lower till it reaches the mountain, when it makes a steep ascent to the snow-capped peaks; and seeing it as we did that bright sunny day, it was a sight not soon to be forgotten. We pass on, meditating on how beautiful nature has formed everything, and wondering what improvements man could make on mother nature in this beautiful spot, till our reverie is abruptly closed by the porter's announcement of Red Hill, the terminus of the S. P. R. R., thirty-five miles from Leadville, where we take the stage to finish our journey, and from the rough road, together with nearly being suffocated with dust, we are not in much humor to note anything we are passing. We reach the top of the range and Mosquito Pass at dusk. There is a foggy mist overspreading the mountains, and the air is very chilly, while the driver is refreshing his horses, or mules rather, we stop for a moment to take a look down that almost perpendicular descent of rock of all conceivable shapes to the yawning abyss below, some three or four hundred feet. We turn from

it with a sigh of relief, being satisfied with what we saw in one day, in the Rocky Mountains; and entering our stage, it being now dark, we know nothing more till we are landed in Leadville, long after comfortable hours, and also must I land,—for want of paper, and possibly your patience.

SUMMER APPLE BLOSSOMS.

BY J. S. CRAMER, SERGEANTSVILLE, N. J.

I have on my grounds what to me is a curiosity. It is a third crop of apple blossoms. The trees stand in the nursery in rows—the variety is the Maiden's Blush. Three trees now have apples on beginning to ripen; another lot about the size of hickory nuts, and on the same trees is a third set of blossoms. I have frequently seen a second set of blossoms but never the third.

[These are formed by the elongation of branches now, which usually remain till Spring and are then only "spurs."—ED. G. M.]

THE COMMON CALADIUM WILD IN FLORIDA.

BY B. F. LEEDS, PHILADELPHIA.

During the early Spring of this year I saw the Colocasia or Elephant's Ear, *Caladium esculentum*, growing wild in two widely separated localities in Florida. On the first occasion on the edge of Gainesville, afterward near Lake City. The plants seen at Gainesville were growing along the border of a brook in rich, damp earth, and amongst the interlaced roots of deciduous trees and shrubs. I did not count the plants; thirty was probably about the number, and judging from their various sizes they were from one to three years old. The brook on which the plants were found probably ran through a garden in Gainesville, and the first seeds carried down the stream during a heavy rain had been caught and detained by the network of roots amongst which I saw them growing.

The plant or plants,—I cannot clearly recollect now whether I saw one or two, but I believe two at Lake City,—were growing in the primeval forest bordering one of the lakes from which the town gets its name. The soil here was damp, and of course shaded as at Gainesville. The seeds in this instance hadstrayed, I fancy, by the intervention of birds, as neither man nor the fluid element would have carried them to the spot where discovered.

EDITORIAL NOTES.

PICEA FIRMA AND PICEA BIFIDA.—Dr. Masters finds the last only a juvenescent form of the first, and the latter will therefore be a synonym of the species, though practically useful from a horticultural point of view. From specimens of both found on one tree, Dr. Master's found the anatomical structure different, thus teaching that the microscope is not an infallible test of species.

FIBRE OF THE VELVET LEAF.—Abutilon Avicennæ. The *Scientific American* says that the "New Jersey Bureau of Statistics of Labor and Industries" have issued, "under its seal," an "offer from Monsieur Le Franc" to pay \$8.00 per ton for straight "jute," stalks "not less than three or four feet in height," delivered in Camden, New Jersey. We note further that this is being widely copied by our exchanges.

It would be well to know what is this "New Jersey Bureau;" what value is attached to its "seal;" what security is there that anybody will take it after it is raised; who in Camden is to receive it; is there any limit to the amount to be received; if the fibre of the Abutilon Avicennæ is offered, will it be accepted as "jute?" and is the offer to stand till the end of next year,—or for how long?

In connection with this we notice in another paper sent out "under the seal" of this Bureau, that no machine has yet been perfected to clean out the fibre profitably; but it is hoped one will be found some day.

One thing seems to us conclusive, that even if the machine were ready, it would take ground very rich indeed to raise this plant three to four feet high when sown thick together as wheat in a grain field. Ground rich enough to do this could be put to better use than raising stalks at \$8.00 per ton.

The whole story is so indefinite, and the results so apparently unlikely to come to anything, that we are led to make the inquiries at the head of this paragraph.

GARBERIA.—Under this name, Dr. Asa Gray, in the proceedings of the Academy of Natural Sciences of Philadelphia, has just established a new genus of plants in honor of Dr. A. P. Garber, son of our venerable friend and correspondent Dr. J. B. Garber, of Columbia, Pa. New species are not uncommonly found, but new genera in the older settled portions of our country, are

rare. This one is from Florida, and allied to the *Liatris* or well-known "gay-feather."

MORPHOLOGY OF PINE FLOWERS.—Mr. James Gordon writes to the *Journal of Forestry* that the female flowers of Pines are of "branch origin," while the male flowers are of "leaf origin;" and one of his arguments is that as the female flower remains on till it forms a perfect and mature cone, and the other is thrown off—"disarticulates,"—as soon as there is no more use for it, it proves one to be a branch, and the other a leaf. But arbor vitæ, taxodium and other things "disarticulate" branchlets, and are not therefore leaves. Most American morphologists, we believe, would say all structure was of "leaf origin."

FRUIT DRYING BY COLD BLAST.—An experiment was made at a foundry in Placerville last week, in fruit curing, by blast of cold air. In this experiment about a peck of sliced apples were placed in a sieve and subjected to a cold air blast for three and a half hours in the cupola furnace of the foundry, and the fruit is reported to have been completely and beautifully cured by the treatment, remaining soft and without the slightest discoloration. We were about to say dried, but cured is a better word, for there was none of that hard, harsh, stiff dryness about it which frequently results from drying by sun heat or fire heat. The experiment was a most gratifying success, and in our judgement is fraught with results of great importance to the growers and manipulators of fruit. The blast of cold air completely frees the fruit from its excess of moisture, with no possibility of burning or shriveling it. Compared with sun drying, it effects a great saving of time and labor. Compared with fire drying, it effects a great saving of expense, attention and risk. Anybody who can command or devise a strong blast of cold air, can dry fruit in a superior—we might say perfect—manner, without being dependent on the weather and waiting on the slow process of sun drying, and without the more expensive resort to fuel and the risk of overheating.—*California Paper.*

SEEDLESS PERSIMMONS.—It is not uncommon for the persimmon to produce a fleshy fruit without seeds, and these are generally better flavored than the normal kind. Mr. Heiges sends us some nice ones from York, which however have a few small seeds.

LITERATURE, TRAVELS AND PERSONAL NOTES.

COMMUNICATIONS.

NOTES AND QUERIES—No. 7.

BY JACQUES.

Scientific and historical researches are leading men to curious discoveries. Not the least will be found in the *Contemporary Review* for Sept., 1879, Francois Lenormant has an article on "The First Sin," in which an attempt is made to name the sacred plant of the fruit of which Adam and Eve ate, from Assyrian bas reliefs, etc., and the writer even gives the botanical designation. He says: "It is invariably a plant of moderate size, of pyramidal form, having a straight stem, from which spring numerous branches, and a cluster of large leaves at its base. In one example only is the plant represented with sufficient accuracy to enable us to classify it as the *Asclepias acida*, or *Sarcostemma viminalis*, the plant known as Soma, etc." Here is curious speculation indeed, and the whole article is recommended to botanists and others.

Honey Making in the United States.—I transfer from the *Popular Science Monthly* the following, which is not only deeply interesting, but will be new to many: "The annual production of honey in this country is estimated at about 35,000,000 pounds, and the business of bee-keeping is being rapidly systematized. One firm of wholesale grocers in New York keeps as many as 12,000 swarms; other keepers have often from 3,500 to 5,000 swarms. Arrangements are made with farmers and owners of orchards to allow an apiary of a certain number of swarms to be placed in their grounds. At the distance of three or four miles another apiary is placed with another farmer, and so on. For this accommodation the bee-keepers pay either in money or in shares. It is estimated that on an average, an acre will support twenty-five swarms, yielding fifty pounds of honey each. The apiaries are cared for by men in the employ of the bee-owners. Many ingenious contrivances have been introduced for the purpose of saving the

labor of the bees and the keepers. About ten years ago a German suggested that thin corrugated sheets of wax, which he called 'artificial tablets,' should be provided for the bees to make their comb from. These, however, did not come into general use; but a few years ago Mr. W. M. Hoge effected an improvement by starting the side-walls of the cells. When these 'foundations,' as they are called, were presented to the bees, the intelligent little creatures at once took advantage of them, and extended the side walls so as to form the regular hexagonal cell. The machine by which the impression is made on both sides of the wax is very simple, and somewhat resembles a clothes-wringer, only the iron rollers are studded with little hexagonal-headed pins just the size of the section of a cell, so that when the thin sheet of wax is pressed up between the pegs to the height of about one-sixteenth of an inch, it offers a substance for the construction of the cell-walls. Another remarkable adaptation of machinery is afforded by the use of a rotating frame, which causes the cells of the comb placed in it, to be emptied by centrifugal force. The empty uninjured comb is replaced in the hive, and again used by the bees. As about three-fourths of the time of the bees, it has been computed, is taken up in the construction of the comb, it will be seen that by these contrivances a great saving of bee labor is effected."

Take care of the weeds.—It has been found, says the *American Agriculturist*, by careful and patient counting the number of perfect seeds produced in a number of seed-pods, that on a single plant of Purslane, *Portulaca oleracea*, there will be 1,000,000,000,000 as the seeds of the second generation from a single plant, or a seed for every square foot of 23,000,000 acres.

Rare Trees.—*Scribner's Magazine* for November has an excellent article on rare and weeping trees. It is a good sign that such notices are acceptable to the public. We could wish that the weeping *Sophora* were more plentiful. Why does not somebody prepare for planters the

trees most desired, and keep a stock of fair size. We could have wished that the writer had told the public and enforced the fact that the Jingko tree, *Salisburia*, is capable of being trained to a wall as readily as a vine, and that under this treatment it is very beautiful as well as curious. It may be curved in circles, or trained to any form.

English Fruits.—Mr. Gladstone in a recent speech, made another point for the English people to consider. He told his audience that they imported five millions two hundred pounds sterling, yearly, of fruits from abroad, and he instanced a gentleman on the "Hudson river, America," who has an apple orchard of 200 acres, the produce of which were shipped to England. He could do this because the land was his own, and not rented from a grasping landlord. Twenty-five or six millions of dollars sent away for fruit! for the reason that if a tenant plants fruit trees, the product goes ultimately to benefit the landlords, and so it is with other things that require time to mature.

Perpetual Strawberries.—A valued correspondent sends a dish of strawberries, Oct. 22d, as a sample of perpetual bearers, bringing a dollar a quart at a late season. These are the small Alpine berry, well known in France, and to some in America. Interesting as they are, and with a true color brought about by hybridization, they are not sufficiently prolific and tasteful as is desirable in what we would call a "perpetual strawberry." There appeared a second crop of raspberries in Philadelphia in October.

Mushroom Culture.—There are great hopes that the premium offered for commercial success in mushroom culture will result in a plentiful supply.

Shabby.—A certain reformatory institution for youth now employs its inmates in making immense quantities of toy watches for sale. How much better would it be to teach the best modes of raising fruits, etc. This might be accomplished by having the reformatory in the country surrounded by gardens.

NOTES AND RESPONSES.

BY CHARLES E. PARNELL, QUEENS, L. I.

In the MONTHLY for August, page 225, I notice that you recommend *Spirea lobata*. I do not re-

collect ever seeing the name before. Is it a new or rare plant? Please be so good as to describe it. I have had to abandon the cultivation of *Delphinium formosum*. A few years ago it would grow healthy and flower in great profusion. Two years ago this spring I noticed the leaves on my plants were commencing to curl and twist up in bunches along the edge of the leaf. About July 1st, the plants were about a foot high and the leaves were either curled up or twisted all out of shape and on the flower stems and veins of the leaves were black ridges about the length of a pin; they soon became so unsightly that I had to cut them down. I then gave the plants a dusting of sulphur and also dug some in around the plants, but it did no good. The next spring they came up looking worse than ever. I tried the sulphur on them again but with no success, and about June the first, I dug them up and threw them away. A worse looking set of deformed plants I have never seen. Have you or any of your readers ever noticed anything like this, and is there no remedy for it? Do you think it is worth while for me to try it again from fresh seed. I am glad to hear of your success with this most beautiful plant.

I have been much annoyed with the *Centaurea gymnocarpa* this season. It has a habit of dying off suddenly. Plants looking perfectly healthy are found withered and dead within the course of a few days. What is the matter with them and is there no remedy?

In answer to "J. S. R.," page 234, I would say that *Platycerium alcicorne* is generally known as the Stag's Horn Fern, and the Fern with furry stems described by "J. S. R." must be one of the *Davallias*; they are generally known as the Rabbit's or Hare's Foot Fern.

In answer to "F. B.," page 235, I would recommend for his back wall, *Fuchsia speciosa*. If planted out in a well-prepared border it will produce an abundance of flowers during the Winter; it can be trained to cover quite a space by proper management. If "F. B." wishes running vines he can select from *Hoya carnosa*, *Rhynchospermum jasminoides*, *Clerodendron Balfourii*, or *Passiflora racemosa princeps*, all good free flowering climbing plants, and none of them so subject to insects as the *Stephanotis*. The *Stephanotis* properly treated is an excellent plant for a trellis in the open air during the summer months.

I have had a fine plant of *Tecoma jasmin-*

oides in full blossom since the first of May; my plant is about thirty feet long. Where room can be spared, this is a most magnificent greenhouse climbing plant.

I am delighted to hear that the beautiful *Cissus discolor* can be planted outside during the Summer, and I regret I did not know the fact sooner, so that I could have planted some outside this season.

On page 237, August number, I noticed a remedy for the Colorado potato beetle. I think the potato beetle must be very scarce in "A. H's." vicinity if he can go over his potatoes and touch each beetle with a drop of kerosene oil. If we should try this remedy here I do not think that we would get over many plants in the course of a day. After a trial of many remedies I am satisfied that there is nothing better than Paris green. If care be taken there is not the least danger in its use. I understand however, that London purple is said to answer all the purposes of Paris green. It is said to be soluble in water, and is cheaper than Paris green. If any of the readers of the MONTHLY have experimented with it, I hope they will report the results.

Is *Pritchardia filifera* distinct from *P. filamentosa*? If so, in what respect do they differ? Is the violet Belle de Chatenay a good double white variety, and how does it compare in size of flower and prolificacy of bloom with the Neapolitan?

In the July number, page 212, I noticed an article on "Fertilization by Bees," which proved very interesting to me. I enclose an extract from an article by Professor Gray, in the *American Agriculturist*, for August, 1876, which might prove of interest to some of your readers:

"Now as to red clover, the arrangement is essentially the same as in *Baptisia* and the rest of the pulse family, except that the flowers are crowded in a dense head, the petals are all united below into a prolonged tube, honey-bearing at bottom, and the filaments of the stamens are united. That some pollen reaches the stigma from contiguous anthers, at least when the flowers are jostled, is certain, and some self-fertilization must thus be effected if its own pollen acts. Yet Mr. Darwin found long ago, in England, that while 100 unprotected heads of red clover matured 2,700 seeds, the same number of heads protected from bumble-bees produced not a single seed. And in this country it is generally

understood that the first red clover crop, which is in blossom before our bumble-bees abound, seeds sparingly, while the second produces seed freely. This is attributed either to the abundance of bumble-bees in the latter part of Summer, or partly to the shorter tube of the later flowers, which makes their honey more accessible, and therefore more attractive to other bees and species of insects. In Germany, according to Herman Müller, other insects than bumble-bees take part in the fertilization of red clover, so that Darwin's well-known chain of causation, which reads like a chapter from 'The House that Jack Built,' must be taken with some qualification,—at least out of England. Concluding that red clover in that country is fertilized only by bumble-bees, he remarks that the number of bumble-bees depends on the number of field mice, which destroy their combs and nests, and that the number of mice depends on the number of cats in the neighborhood, so that an increase in the number of cats which catch the mice, which destroy the nests of the bumble-bees, which fertilize the red clover blossoms from which they suck honey, might diminish the amount or tend to terminate the existence of red clover in any district. Some one, we believe in New England, added another link to this chain by suggesting that, as the number of cats kept depends on the number of old maids, these worthy members of the community might in certain cases be unwittingly the cause of the failure of the clover crop. But, coming down to sober facts, it is obvious that our early red clover sets a fair quantity of seed before bumble-bees are abundant, and some of this seed is likely to come from self-fertilization. Yet we do not learn that our critical correspondent has tested this, as Mr. Darwin did, by shielding clover-heads from all insects, and noting the result. On the other hand, the fuller fertility later in the season, when the clover-heads are largely visited by bees, goes to show that cross-fertilization takes place and is advantageous, if not absolutely necessary. To show that these flowers and all others of the pulse family, are constructed for crossing by means of flying insects, and that while some may be, others cannot be self-fertilized, will be my task in the next article."

The enclosed notes occurred to me while reading the July and August numbers of the MONTHLY, and if they are of any value they are at your disposal.

DISGRACEFUL PUBLIC PARKS.

BY J.

In the November number of the GARDENER'S MONTHLY I was much interested. After having taken a walk with you from the Chinese pagoda down and around Kew Gardens and through the park in Paris, I felt just beside you as you sat down upon the round stump in that Philadelphia square and took good heed as you began to look around you and repeat "because the park was now wholly run in the interest of politicians," and I would just ask you Mr. Editor, where is the public business in this great America of ours that is not to-day run by politicians? And while you "blame that system which makes such a success to individual effort possible," how is it in the present state of the morals of the country to be prevented? Your perception, Mr. Editor is not so blunted, but that with your experience you can comprehend the whole situation at a glance. Being in New York in 1842, I called upon an Irish friend who was a house painter, and after inquiring how he was getting along, he said that at the present time that he was doing very well, but that for a long time after he came to New York he had fared badly. In giving bids for jobs he said that some how or other he was always unfortunate, some one or other was sure to head him off. Complaining one day to a friend, he was told that if he went and joined a certain Odd Fellow lodge he would no longer have any complaint against his bad luck. He said that he had done so, and in his experience had found that it was impossible for any man in New York except that he belonged to a secret oath-bound society (Masons or Odd Fellows) to get any office of profit; not even, he said, charge of a squad of street scrapers. Secret societies hold every office of profit in Pittsburgh, and I believe over the nation from President down. But I may be in my innocence writing to a brother of the "mystic tie." There is however one thing sure that your expressed opinion is correct, as to having the right man in the right place, and that no superintendent of public works is dealing honestly with the public who pays worthless hands; but let you be what you may, I believe you to be an honest man who despises all trickery.

[The editor has a high regard for "mystic" members. He is not a member of any one of these bodies, and yet he has been elected to political office. Once on a time it was urged on

him to accept a nomination for a leading office under the city government of Philadelphia, especially in view of this very question of public parks, on which it was supposed he might have some direct influence. For this reason, and this alone, he consented to be a candidate. He was nominated for the position with no thought on the part of the political body that nominated him that he was not "an Odd Fellow," a "Mason" or any other thing. In fact the editor can speak from personal experience, having made politics a study in science as well as some other things, that the question of public office is one of hard work and industry. The nice good man who wants to have nice good public parks and gardens, and "good men and true" to manage them, will never accomplish his purpose by sitting down in his library and giving a growl. While he is sighing and sorrowing, the other fellow is out and around talking with and influencing voters, and will beat the nice good man every time. A magazine like this is not the place for a discussion of the "ways and means." If the editor was in a "social science meeting," he believes he could show how the right men could be got into the right places; that is, in a general way. All that is germane to a horticultural magazine is to show that public parks and gardens are mostly in a scandalous condition, and that this cannot be remedied while the good people take no interest in public affairs beyond growling, and leaving to others the hard work and expense. Depend on it, it is as true in public affairs as in any other business that the most perfect machinery, is the most likely to win; and the engineer of the machine, who ever he is, is bound to see that he gets his pay, and he will reward those first and before all, who help him to carry the machine along. We repeat emphatically that public office as it is now, means very hard work, and great cost, and the worthy men who are not disposed to this sort of thing necessarily give place to the unworthy ones who are.]

THE FLORA OF THE STATE OF TEXAS.

TRANSLATED FOR THE GARDENER'S MONTHLY FROM THE "ANZIGER DES WESTENS."

NO. IV.

Amongst the representatives of the underbrush along the Guadeloupe we find one from the tropics, *Yucca filamentosa*, ten to fifteen feet high, straight sword-like leaves of four to five feet in length all around the top of the stem,

out of which there shoots the colossal flower-stalk with its hundreds of white bells. Some Yuccas are found with two and three of such flower stalks.

The nearer you approach the rivers or its tributaries the more sombre the vegetation gets to be. Here you find in great quantities the small fan palm, Sabel minor, Cannas with their splendid red and yellow blossoms studding thickly the shores, and finally *Caladium esculentum* which covers for miles and miles with its gigantic leaves the waters of the Comal and the San Pedro, and in the Guadeloupe and San Antonio, covers every little island and every open place along their water courses. Of grapes we find *Vitis bipinnata*, *V. cordifolia*, and *V. macrocarpa*.

The flora of the mountains is but little different from that of the uplands, and some shrubs and trees of even the valleys appear there, although in rather reduced proportions, such as *Sophora*, *Cercis*, *Ungnadia*, *Yucca*. The last named is, in solitary instances, found on naked rocks along the Sabine River. Standing in thick groups along the creeks, on the rock and on the high mountains, we see *Prunus rivularis*, three to six feet high; fruit round, light red, size of a cherry, pleasant acid taste, called in Texas the Tawakony Plum, because that tribe of Indians used to preserve it in honey. Further we find the mountain side covered with a creeping grape vine, *Vitis rupestris*; fruit light red, small, very aromatic, sweet of taste. Further the wild Persimmon, ten to twelve feet high; evergreen, blue green foliage, fruit large, but of nauseating sweetness. Further divers kinds of sumac, *Rhus verrucosa* and *R. copallina*, the American Pepper Tree, *Xanthoxylum Carolinianum* and the Texas myrtle, *Oreophylla myrtifolia*. These cover hill and dale all along from the Medusa to the Colorado River.

Rhus copallina contains eighteen to twenty-one per cent. of tannin, is useful for tanning sheep and goat skins and for the coloring of glove leather. It is most abundant, and gets to be sixteen feet high.

Astonishingly rich and luxurious is the smaller world of plants. It is hardly possible to give the reader a bare idea of the copiousness and diversity of the flowers in this State. As I said at the beginning of the first article, you find here not only a good deal of the flora of other zones and other parts of our globe, but also a great many flowers which are natives of, and

peculiar to the State. Some of them appear in such quantities that whole prairies and mountain sides seem clad in the particular color of their blossoms, and some of them appear in varied shapes and in different colors of bloom. For instance the *Oenothera serrulata*, *capillifolia*, *longiflora*, *Drummondii*, *macrocarpa*, *alata*, *uncinata*, *sinuata*, *Röhmmeriana* and *speciosa* show so many varieties and such diversities that you are tempted to see a new species.

In this middle zone we also meet now for the first time with Cacti. *Opuntia*, *mammillaria* and *Echidnocacti*, also several Yuccas of the habitus of Aloes. Amongst them a red flowering one, the knowledge of which has reached botanists only a year ago.

EDITORIAL NOTES.

OUR COLORED PLATE.—The publisher would like to remind the reader that the colored plate he has been giving annually for some years, is not part of the original plan of the GARDENER'S MONTHLY, but is his annual present to the subscribers for the many favors done him, chiefly in the way of getting new subscribers. Some may think the money spent on this plate could be spent more advantageously in "pushing" for new subscribers in some other way. It is a pleasure to him to feel that the very existence of the Magazine, has been solely on the good will of its friends, who often show their appreciation by enclosing a new name with their own subscription.

OHIO STATE HORTICULTURAL SOCIETY.—Twelfth Annual Report. From M. B. Bateham, Secretary. Full, as it always is with matter of great interest to Ohio horticulturists, and the fruit growing portion particularly.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, for the year 1879, Part I. Edited by Robert Manning, Secretary.—One of the most difficult arts is to report correctly the discussions at agricultural and horticultural meetings. In many of the reports that come before us, it often happens that there is no evident relation between the questions and answers, and the result is more like a report of an assemblage of lunatics than of rational beings. But these *Transactions* are a model of perspicuity. The

art of collating just what a speaker means, seems well understood, and one can read it through feeling that he has really a condensed account of what actually took place.

Of the subjects under discussion, the "Influence of the Stock on the Graft," must have been very exciting, as it was carried over for three different meetings. Most of the speakers seemed to believe that there is more or less of an influence. Mr. C. M. Hovey was among the few who did not believe. The Editor of the GARDENER'S MONTHLY was referred to by one of the speakers as the authority for a quoted fact, but Mr. Hovey "put no faith in Mr. Meehan's experiment; analogy shows that what is claimed cannot be done." It is some satisfaction to note that Mr. Hovey evidently has no more faith in his own experiments than in anybody else's, for during the past few years he could have tested the matter for himself if his faith in "analogy" had allowed him ten minutes for this purpose.

The balance of the proceedings is taken up chiefly with apple culture, so that it is really a good pomological number.

THE HYGIENIC PREVENTION OF ZYMOTIC DISEASES, by Dr. Thomas Moore, Germantown, Philadelphia.—This little treatise though addressed by a physician to human beings, has an equal interest to those who have to care for the health of vegetation. Dr. Moore shows that all zymotic diseases, or those which like scarlet and other fevers, are the result of blood fermentation, can only successfully attack when vital power is weak from defective nutrition. Thus the person properly nourished in all his parts is proof against a disease which may destroy hundreds of his neighbors. Now if we could only tell how to properly nourish ourselves, we should all be proof against disease, but there are some whose powers of applying nutrition are defective from birth, and others whom old age enfeebles; but the conditions of health may be so understood and controlled, that vital power may be aided and assisted to resist zymotic attacks. Dr. Moore shows that external heat is the great enervator or invigorator as the case may be, and he believes that by controlling heat in special cases we can so control nutrition that many now fatal attacks might be rendered inert.

It gives us pleasure to read these results of Dr. Moore's experience with human bodies, because it accords well with our own observa-

tions on vegetation, as we have frequently recorded in the GARDENER'S MONTHLY. There is a degree of heat to which the roots of trees may not be subjected without injury to their vital powers, and it is because of this that grass or mulch of some kind to keep off the fierce Summer sun's rays, has been found of so much value to the orchardist,—as we pass from the lake regions southwardly,—and it has been noted over and over again that trees not wholly adapted to our climate, always suffer more in those Winters which succeed very hot Summers. Other points might be referred to, but enough has been said to show that life in plants is affected by much the same influences as affect it in the animal world.

DAIRY FARMING.—Being the Theory, Practice and Methods of Dairying, by J. P. Sheldon, New York, published by Cassell, Petter, Galpin & Co. This is issued in parts, of which I, II and III are before us. It is intended to go over the whole ground of dairying, and to be a beautiful as well as a thoroughly exhaustive work. With each part there is one chromo lithograph. It has been a long time since anything of this class has been treated in this elegant style, and the enterprising publishers deserve success. It is issued at forty cents each part.

REPORT ON THE PROGRESS AND CONDITION OF THE ROYAL GARDENS AT KEW, FOR THE YEAR 1878.—From Dr. Joseph Hooker, Director. Among an immense number of items of useful information, we may note that the "Prickly Comfrey," has been identified by botanists as *Symphytum asperrimum*; but the one under culture is really not that species, but "probably a hybrid of garden origin between *Symphytum asperrimum*, and *S. officinale*, the common garden comfrey. However this may be in Europe, we believe that the one figured in the *American Agriculturist* some years ago, from a plant furnished by the writer of this, is genuine,—as that had been grown in this country for probably forty years, and doubtless had never any connection with the plant "naturalized in the neighborhood of Bristol," which seems to have supplied the "forage plants" for English agricultural experiments. Sir Joseph Hooker says that in England it has been found useful for Winter fodder, as the foliage starts early, and affords several cuttings a year. It is greedily eaten by animals which yet refuse the ordinary garden comfrey. "A drawing is given of the new 'tropical fodder grass' Teosinte.

GENERAL INDEX TO THE REPORTS OF THE PATENT OFFICE AND AGRICULTURAL DEPARTMENT FROM 1837 TO 1876, issued by the Commissioner of Agriculture.—We have often wondered why such a work as this was never undertaken. Commissioner Le Duc deserves great praise for it. It gives a value to the Reports of the Department almost incalculable.

THE AMERICAN NATURALIST for November is a remarkably full and interesting number. It has improved greatly during the past year in the amount of general information it gives to the reader. In some of the departments this is particularly noticeable—in botany, however, less than in some others. It is well to give attention to long papers giving "original" views, but the "general information" column, which requires much patient editorial research and hard work, is generally badly served in most scientific papers, and it is pleasant to note the improvement here in this. McCalla & Stavelly, Philadelphia, are the publishers, and Dr. Packard, we believe, the chief editor.

HOW TO SELECT COWS ON THE GUENON SYSTEM. By Willis P. Hazard, Philadelphia. J. M. Stoddart & Co.—This pamphlet has a portrait and sketch of the life of Guenon, who was a French agriculturist, and discoverer of the method of determining the milking abilities of cows by the peculiar arrangement of the hair of cows in what is now known as the escutcheon. So far as we know, there has been no attempt to show the physiological relationship between the arrangement of the hair and the lacteal system, although it is near fifty years ago since Guenon discovered what many believe to be the fact. This might be taken as arguing against the soundness of the plan, if we did not know that science-teaching too often follows in the wake of a few leading scholars, and seldom seeks for itself the principles that are taught. However, it seems to be the case that no one knows why the character of the escutcheon should be a milk guide. All that is known is that in a majority of cases—by no means in all, the marks have been reliable, and this should incite all dairy folk to know what is said about it.

THE RURAL NEW YORKER.—The *Rural New Yorker* has improved wonderfully of late. It always was a good paper. As it is now, it will compare favorably with any agricultural serial issued, to say the least of it.

NURSERIES OF HOOPES BRO. AND THOMAS, WEST CHESTER, PA.—According to the *New York Graphic*, these deservedly celebrated nurseries, established in 1853, now contains 300 acres. They have fourteen glass houses, and employ an average of 100 hands.

THE CONTRIBUTOR.—Under this title we have the first number of a monthly magazine, edited by Junius F. Wells, of Salt Lake City, where it is published. It is devoted to science, history, literary and religious topics. We believe it is the first attempt at any serial work having any relation to scientific thought issued in the Mormon Territory. The only chapter of this class in this number is one on "shooting stars," by J. B. Toronto.

SCRAPS AND QUERIES.

FOREST HILL CEMETERY.—Reader says: "You have spoken twice in your publication of Forest Grove Cemetery in Boston. Do you mean Forest Hill Cemetery?"

A GARDENER'S PRIVILEGE.—"Maryland" asks: "A subscriber wishes to have the opinion of the editor or of some reader and correspondent of the MONTHLY, on the following case:

A gardener on a private place has, in making purchases of pots for the use of the garden, received from the maker of the article, what the gardener calls presents; in plain terms, a commission or douceur for bringing to him the patronage of the employer. The fact having become known to the employer, and the latter having made objection to the practice, the gardener maintains that there is nothing wrong in the transaction, asserts that 'they all do it,' and asks whether, when a present is offered to him, he can be expected to throw it away?"

[As this is rather a question of ethics than of horticulture, we were uncertain whether we ought to give it a place in our crowded columns; but have decided to give our correspondent the benefit of the doubt. Noting, however, that the few words we have to say about it, must close the discussion.

It is not true that all gardeners take "commissions" on their employer's bills. We can say of our own knowledge, that very few of the best gardeners do. As to "presents," these may

be either in the shape of good feeling and respect, or they may be intended as bribes. The man of right feeling indignantly rejects the latter, but cannot be expected to "throw away" the former, any more than any other person would

from the President down. The difference between an honest mark of respect and a bribe is to be decided by the degree of moral feeling in the parties all round, and cannot be settled in a general way in a gardening magazine.]

HORTICULTURAL SOCIETIES.

EDITORIAL NOTES.

THE AMERICAN POMOLOGICAL SOCIETY.—Having concluded President Wilder's excellent address in our last, it only remains to place on record that it was on the whole a very successful meeting. The detail work will of course be given in the regular proceedings, which will be compiled by the Secretary.

Dr. Warder was elected chairman from among the Vice Presidents present, and filled the position admirably. When the election of officers came up, Col. Wilder's resignation was considered. No one wished to accept it; but in view of his increasing age and infirmities, it was suggested that if some one could be elected to aid him, it would be no more than honor due to his long and efficient services. In case the President cannot attend, the constitution of the Society now provides that some one of the Vice Presidents present shall be chosen; but it was suggested that it would be much better that a permanent "First" Vice President should be chosen, who then would be prepared with an address in advance, in case of any disability in the President. The office was therefore made, and Mr. P. Barry elected to the new office. Dr. Warder then vacated the chair, and Mr. Barry took the chair. This vacating of the chair immediately on the election, and the induction of the new President, in the middle of a session, always seems absurd to us, and we do not understand under what parliamentary rule it is practiced. Why not all the other elective officers and committees resign, or rather be replaced? Some of the committees would probably like this, especially the committee on examining fruits. On this occasion Mr. Berckmans, Dr. Hape, Mr. Bateham, Sylvester Johnson, Mr. Watson, and Dr. Burnett, gave the best part of three days of continual hard work, several miles away from the place of meeting. They are among the best informed and most useful mem-

bers, and the meeting took the benefit of what they knew. On the other hand they came there as others did to profit by what the other members said, but were kept in exile most of the time. Some objection was made to these tremendous exhibitions of fruit at these meetings, but Mr. Barry ruled that the Society offered no premiums, and had no right to interfere. The admirable exhibit of fruit no one would wish to see curtailed, but perhaps some one can devise a plan of relieving men who come hundreds of miles to learn and enjoy, from such a serious task. This is within the province of the Society. Mr. Barry, like Dr. Warder, is an admirable presiding officer, and a great amount of work was got through with in a very pleasant manner.

Col. Wilder was elected President, Robert Manning, Secretary, and E. V. Busswell, Treasurer. The Society could have made no better selection. They are all admirably fitted for their several positions. Mr. Manning with a modesty which did him credit, objected to his own election, because it did not seem exactly right that all these three officers should be residents of Boston,—but the meeting seemed to think, and we heartily agree, that this unity of residence is an advantage. It is beneficial that the leading officers should have frequent intercourse, and this is inconvenient where they live hundreds of miles apart. Mr. Saunders, Mr. Hussman, Prof. Beal, Dr. Warder, Mr. Campbell and others read papers which created useful discussions. These with the remarks of members will appear in the Proceedings. Mr. Meehan's remarks were oral. By a special vote of the association he was asked to prepare them for publication. But he explained that the reason he had not prepared a written address, was from sheer want of time to do it.

By some oversight, no vote was taken on the place of next meeting, but it was generally understood that Boston was to be the place. Some discussion occurred on the importance of a Na-

tional Horticultural, as well as Pomological Society; but no one seemed to have any plan that commended itself to the members present. Mr. Samuel Parsons' plan was to have meetings in the off-years of the biennial sessions of the Pomological Society, and to hold the meetings always at Washington. No arrangements were to be made for exhibitions, but only papers and reports read and then handed over to the Department of Agriculture for publication, should the society not have means of its own to do it.

The visits to the nurseries and gardens of Rochester, as well as the intercourse between so many intelligent gentlemen were very profitable, and an entertainment on a very liberal scale at the Power's Art Gallery, closed one of the most useful sessions of the society.

The only event that seemed to mar the pleasures of the members was the gathering of a botanical specimen of a Canada thistle by one gentleman to take to Missouri, which some insisted was equivalent to inviting the "old serpent" to enter Eden; and the charging of members of the society 35 cents each to see their own fruits,—because the President of some park had only been asked for free tickets, who gave the authority which it afterwards seemed only the Board of Directors, who were not consulted, had power to grant. But these little rough spots often meet people when clambering through the world,—and on the whole the members departed to their homes well pleased with their Rochester visit.

MASSACHUSETTS HORTICULTURAL SOCIETY. The semi-centennial address of Hon. Marshall P. Wilder. This is an admirable contribution to horticultural chronology. The first Horticultural Society in America was one in New York, in 1818; but it did not live to a great age. The Pennsylvania Horticultural Society was established in 1827 and still lives. The Massachusetts Society dates from 1829. Col. Wilder gives the names of the distinguished citizens who made the society successful by their patronage and of the exhibitors who from time to time introduced the striking novelties to show how great has been the advance of gardening under its auspices; and after an encouraging glance at the future, concluded in the following eloquent strain:

"And now, my friends, permit me in conclusion to say, that, among the various invitations which I have received to address my fellow-citizens, I have never been honored with one which I more readily accepted, or more highly appre-

ciated, than the invitation to address you on this occasion, coming as it does from those with whom I have labored for so many years. Never have I more heartily joined with you than I do now in commemorating the fiftieth anniversary of our society; and I am quite sure there is no one here who does not rejoice sincerely in this occasion.

"I have summed up briefly, and as well as impaired health would admit, a sketch of the results of a half-century's work. With many of us the sun is fast sinking behind the horizon of life; but the fruits of your labors will continue to enrich with golden hues and spicy odors the tables of posterity for ages after we have dropped like the fruits of autumn, to rise no more.

"One after another of us will pass away. Few of those present will attend the anniversary of this society at the close of the half-century upon which we have entered; but our society shall still live on and prosper. Others will rise up, and carry on the good work; and as they come with fruits and flowers—the results of their labors—to adorn these halls, they will remember those who have gone before. Thus from generation to generation may this temple continue to stand, and honor the names who erected it.

"And now remembering those who have gone before, let us extend a hearty welcome to those who are to succeed us.

"Welcome to our homes, and the beautiful grounds which we have made and planted for your happiness! Welcome to our fruitful orchards, smiling gardens, and charming landscapes, which we shall leave to you! Welcome to these halls, whose walls have resounded so often with cordial greetings and friendly salutations; where thousands shall minister in the future at the altars of nature and art, until perfection shall crown our tables, and gladden our sight, and we shall have exchanged the cultivation of the soil for the culture of the soul!

"Welcome to its libraries and to all its privileges and pleasures! and when at last we shall relinquish our labors on earth, may we fall into the lap of mother earth, like the ripened fruits of summer, then to be welcomed to those celestial fields and to that richer inheritance in the better land where the flower shall never fade, the leaf never wither, the fruit never perish; to the rewards of a well-spent life on earth, that we may partake of the tree which bears immortal fruit,—its bloom on earth, its fruit in heaven."

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